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Paper Men Oppose Reciprocity With Netherlands

S. L. Willson, President of the American Paper and Pulp Association and Sidney Frohman, President of the National Paperboard Association, Present Briefs Against Tariff Treaty at Hearing in Washington—Claim Various Grades of Straw Products Will Be Adversely Affected by the Proposed Treaty

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., February 6, 1935—Brief statements were filed this week by S. L. Willson, president of the American Paper and Pulp Association and by Sidney Frohman, president of the National Paperboard Association, with the Committee for Reciprocity in connection with its hearing in relation to the proposed reciprocal tariff treaty with the Netherlands.

Statement by S. L. Willson

The Willson statement follows:

While the Netherlands is not usually considered an important paper making nation, it is an important competitor with the American producers in some of the markets for the so-called fine papers.

In this field are three basic types of paper, writing paper, drawing paper, and the hand-made or imitation hand-made book papers, used for deluxe editions of high grade books. In all three of these fields the Netherlands competes not only with its machine made papers, but with hand-made and imitation hand-made papers. With the rates of wages in effect in the Netherlands these papers, made by hand, quality merchandise, can be produced at prices which enable them to compete seriously with American high grade papers. All of these papers are provided for in Paragraph 1407 of the Tariff Act of 1930, and the American Paper Industry believes that the rate of duty on these high grade papers is not adequate to place the imported papers on a fair equal market basis with the American papers with which they compete. A rate of duty of 3 cents per pound and 15 percentum ad valorem admits such papers for sale at prices materially below those at which luxury merchandise should be permitted to compete with the high cost American mills.

The American Paper Industry believes that the rate on hand-made papers should be increased to the maximum permitted under the law by which these reciprocal trade agreements are being negotiated. That increase is 50 percent of the present rate, making the duty which we believe to be justified 4½ cents per pound and 22½ percentum ad valorem. The American Paper Industry believes there is a market for quality papers, but will be unable to develop such market if the high grade foreign papers are admitted at less than an adequate rate of duty to permit the domestic papers to compete on equal terms.

The situation as to the Netherlands also involves the heavy shipments of bristol board. Despite the adverse effect of the change in the value of the dollar, imports of bristol board from the Netherlands have increased this year as compared with 1933, and 1933 showed an increase of 50 percent over those of 1932. Statistics are not readily available for 1933 of imports of bristol board, but the combined total of fine papers and bristol board in 1932 of 305,516 pounds, valued at $23,247 have been exceeded in the first eleven months of 1934. Bristol board imports alone for that period have been 249,551 pounds, valued at $22,544, and the addition of data for other fine papers brings the eleven months total to more than the total for all of 1933.

Bristol board is dutiable at 3 cents per pound and 15 percentum ad valorem, under Paragraph 1407 of the Tariff Act of 1930, and even with this rate of duty the foreign merchandise can be sold at less than the cost of production of the domestic product of comparable grades. The bristol board imported from the Netherlands is chiefly used in the manufacture of lamp shades, and similar bristol board is imported from various other countries. Any change in the duty on this merchandise imported from the Netherlands will apply automatically to the imports from other countries, and it is for this reason that the American Paper Industry asks for an increase in the present rate to 4½ cents per pound and 22½ percentum ad valorem, the maximum change in duty permitted under the Act by which these trade agreements are being negotiated.

In 1930 the American Paper Industry joined with the manufacturers of paper boards in asking that straw paper, of the type used in the production of corrugated containers, be classified as paper not specially provided for, this being brought about by a change in the line of demarkation between paper and paperboards. This increased the duty from the Paperboard rate of 10 percent to the rate for paper not specially provided for of 30 percent. Congress saw that this change would provide a market for American straw amounting to nearly 40,000 tons annually, and made the change as requested, both for the protection of the American paper manufacturer and the middle west farmers who found in this field a good market for what would otherwise be a waste product. This paper is made by paper machines, but is used by the Paper Board Industry for the production of corrugated containers, so our interest in the continued protection of this

(Continued on page 45)

Early Paper Mills In Pennsylvania Described

James F. Magee, Jr., Narrates History of Paper Industry In Philadelphia and Surrounding Territory Before Representative Gathering at Franklin Institute—T. H. B. Smythe and W. A. Hentz Honored At Dinner Given by Board of Governors

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., February 4, 1935—Outstanding in the activities of the Philadelphia Paper Trade Association was the dinner given by the Board of Governors on Wednesday evening at the Penn Athletic Club, during which President Norbert A. Considine presented to T. H. B. Smythe and William A. Hentz, past presidents, respectively, beautiful hand engraved testimonials in recognition of the valuable and efficient services rendered the association and its members during their incumbency. Immediately following the dinner at which James F. Magee, Jr., was guest of honor, they assembled in the lecture room of the Franklin Institute where a representative gathering was present to hear Mr. Magee, in his inimitable way, conduct them on a reminiscing tour in a narration of the history of early paper mills in Philadelphia and surrounding territory.

First U. S. Paper Mill

Mr. Magee cited the fact that in the Eighteenth Century paper was imported from England, Holland, France and Spain, and that shipments were very uncertain and special grades of paper were difficult to secure. This state of affairs, in all probability, contributed to the establishment of the first paper mill on the American continent, which was built in 1690 on Paper Mill Run, called by the Indians, Monoshone, in Roxborough, near where Rittenhouse street coming down from Germantown joins Lincoln Drive. A company of four financed the building of the mill; William Rittenhouse, a paper maker from Amsterdam, William Bradford and two others owned the stock. It was agreed that Bradford—the first printer in Philadelphia—was to have the privilege of buying a large proportion of the product. This was known as the Rittenhouse Paper Mill, which was washed away in a great freshet in 1700.

The mill was rebuilt, and William Penn generously headed the subscription list with a contribution of 25 pounds to help in its erection. A third Rittenhouse paper mill of much greater capacity was later built lower down Paper Mill Run opposite the present Rittenhouse dwelling, the birthplace of David Rittenhouse. This mill was demolished in 1891, when the property was purchased by the Fairmont Park Commission. In 1729, William Dewees and John Gargas manufactured in their Chestnut Hill mill a species of ass's skin paper used for memorandum books from rotten stone, probably asbestos, which when thrown into the fire came out white and unharmed. It is well established fact, said Mr. Magee, that over two thousand years ago Egyptians made paper from asbestos.

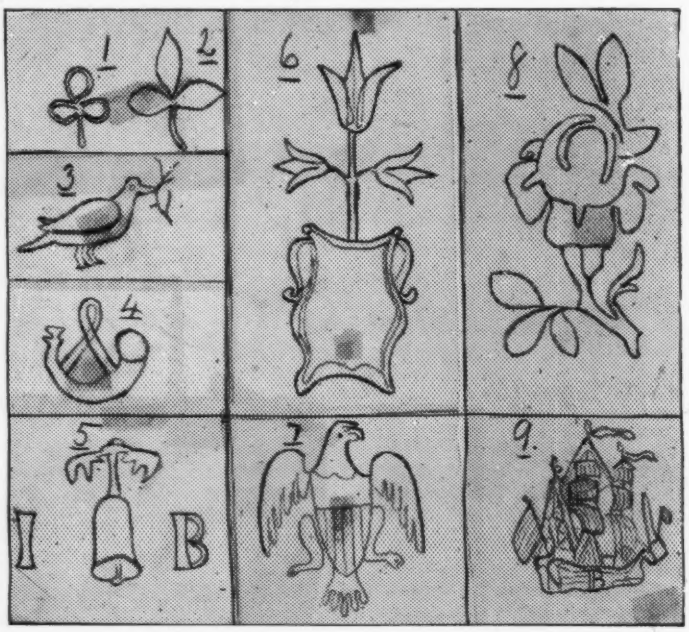
In this same year, namely, 1729, the Thomas Willcox paper mill was built on a branch of Chester Creek, Delaware County, and has a most interesting history. This mill specialized in high grade writing paper, and later in government bank note paper.

Another very interesting mill was built by the Zionistic Brotherhood, a community settlement of the Dunkards at Ephrata, Lancaster County, in 1738. The first bible in America, printed in 1743, by Christopher Sower, of Germantown, was printed on paper containing the emblem of the Ephrata Mill, and among the priceless possessions in the Franklin Institute, is a copy of this very rare Bible.

In 1748, Conrad Sheetz erected a paper mill on Mill Creek, Lower Merion Township, which later was known as the Dove Mills of Thomas Amies. In 1752, Franklin and Hall, printers, advanced 100 pounds to Sheetz to enlarge and improve the mill. Shortly after Mr. Franklin received the contract for printing the Colonial paper money, and the Sheetz mill manufactured the paper.

Nicholas Hasselbach, the first printer of Chestnut Hill, finding it difficult to obtain paper for his print shop, built in 1757 a paper mill on Trout Run, which empties into the Schuylkill River near Miquon Station, where later William C. Hamilton erected his Riverside Paper Mills.

Before the Revolution, a tax list of 1769 records twenty paper mills among the 320 industrial mills in Southeastern Pennsylvania on the streams emptying into the Schuylkill and Delaware Rivers.



WATERMARKS OF EARLY PENNSYLVANIA MILLS

Pioneers of Industry

Said Mr. Magee: "The first pioneers of industry were men of great courage and energy, the sites upon which they built their mills were in a wilderness infested with Indians, bears, wolves and wild cats. In some cases a dam was constructed across the stream but most of the mills received their water power from the smaller streams running down the hill sides. There were no roads to the mill, and in a flat country a mill race sometimes a mile long was dug to give an 8-foot drop to turn the water wheel—wind and water being the only motor powers in Colonial days."

Title was taken by the

Bank of Germantown in 1843 to a grist mill on the Wissahickon, operated by John Wise, Jr. Charles Magarge, a paper manufacturer, who was a director of the Bank of Germantown from 1841 to 1868, and president after 1848, rented the mill in 1843 and plunged the grist mill into a paper mill, and it is said that the Magarge Wissahickon Paper Mill was one of the finest of its time, and had a very long and honorable career.

Mr. Magee contrasted the amazing comparison between the solitary Rittenhouse Paper Mills of 1690, worth a few hundred dollars, employing three men and producing annually perhaps 1500 reams of paper, and the 700 establishments now, with paper and pulp mills, representing an investment in capital of more than five hundred and fifty million dollars, employing one hundred thousand persons, and a daily capacity of about twenty thousand tons of paper annually produced to the volume of three hundred and fifty million dollars.

For lack of space, it will not be possible to describe the early American Watermarks, which Mr. Magee so ably explained to those in attendance, but which are plainly shown in the accompanying illustration.

Paper Sales Increase

With a unanimity in trade circles in their widest extent —fine paper, course paper and allied lines—that this past week has shown a general all around increase in sales, the forecast is that this is expected to continue until April at least.

The paper stock trade for the first time in a few years is enjoying a profit as a result of the betterment this past week in almost every item of the better grades of paper stock, notably No. 1 and No. 2 hard white and No. 1 and No. 2 soft white ledger stock. The cheaper grades, however, continue listless.

Association Activities

For the Fine Paper Division of The Philadelphia Paper Trade Association, the following chairmen have been appointed—Leonard Raymond, of Raymond & McNutt Company; Blottings — C. B. Cobaugh, Satterthwaite & Cobaugh; Book — George Weaver, Garrett-Buchanan Company; Box Papers—Richard Hartung, A. Hartung & Company; Cardboard—E. A. Keller, Garrett-Buchanan Company; Cover and Texts—Leon Beck, Charles Beck Company; Elvelopes—R. W. Fishburn, Whiting-Patterson Company; Seconds and Job Lots—H. C. Riley, Sabin-Robbins Paper Company; Writings—William Hentz, Thos. W. Price Company. John R. Kohl, of Garrett-Buchanan Company, was appointed chairman of Credit Control Group.

For the Coarse Paper Division, the following chairmen were appointed: Bags—Simon Walter; Kraft Paper—Nathaniel Saxe; Tissue and Gummed Tape—Vincent A. Dirvin; Board Products—C. A. Wilder. Mr. Dirvin was also appointed chairman of Specialties.

Simon Walter, vice-president of Bag Division, has been appointed to represent the interests of the members of this Division at the annual convention of the National Paper Trade Association to be held in New York, February 18 to 22.

At the January meeting of the Philadelphia Paper and Cordage Association, which was held in the Rose Room of the Adelphia Hotel, new officers were installed, and plans for the new year, including a lively program of entertainment and general association activity, were announced. The meeting was one of the largest in the history of the association, with all the principal paper houses represented.

The highlight of the meeting was the presentation by president Harry S. Platt, The Denny Tag Company, to immediate past president, George K. Hooper, of a silver loving cup in recognition of his splendid work in the interests of his fellow members. The handsome cup was engraved with the following inscription: "George K. Hooper, 1935—In grateful appreciation of his untiring efforts in the promotion of good fellowship—Philadelphia Paper and Cordage Association, Inc."

Mr. Hooper was given a unanimous vote of thanks for his unselfish devotion to the work of building up the association and formulating its principles. It was pointed out that he increased the membership from six in the spring of 1933 to eighty members at the end of 1934. Mr. Hooper instilled into the association his own high ideals and a widespread feeling of good fellowship, which was manifested by all the members.

At the next meeting of the association, which will be held on Friday, February 15, E. K. Lay, chairman of the Entertainment Committee, announced that the Rev. Joseph Fort Newton, D.D., Litt, D., St. James Church, 22nd and Walnut streets, will address the members on the life of Abraham Lincoln. Dr. Newton is an eminent authority on Lincoln.

Urges Conference Program

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, January 31, 1935—Alexander Thomson, president of the Ohio Chamber of Commerce and Hamilton Chamber of Commerce, and president of the Champion Coated Paper Company, in a statement, said. "If the program of the White Sulphur Springs conference is carried out, it is my belief that conditions in 1935 will be considerably improved. This program was earnestly thought out by the best business brains of this country and it included the balancing of the budget in a reasonable period.

"If the people had the knowledge that the budget would be balanced by 1936 or even 1937, business would respond with a very satisfactory increase in volume of reemployment.

"Moreover, if the government would let us know at the earliest moment possible what the value of the dollar is going to be, we could make further progress toward recovery, and a real recovery cannot take place until the above two assurances can be made.

"Then, and then only, the heavy industries in the building trades can respond by large outlays of capital for the dammed-up wants of the United States, which are enormous.

"In spite of the lack of these assurances, business men are going ahead to the limit of their capacity, but that capacity is only in the consuming trades and cannot be in the heavy industries because anything invested in them is a long term investment."

Loans for Development of Mills in South

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., February 6, 1935—On reasonable assurance of repayment, loans will be arranged for the development of paper and pulp mills in the South, according to Jesse Jones, head of the Reconstruction Finance Corporation.

Mr. Jones looked with interest and favor on the suggestion that if local interests in various areas of the Southern pine belt put up half the capital the RFC would loan the remainder necessary to finance mill construction. The Jones statement followed final enactment by Congress of the bill to extend the life of the corporation and liberalize its functions to provide loans for new industry.

Quebec Threatens Drastic Action Over Newsprint

Introduction of Measures Into Provincial Legislature During Present Session May Definitely Solve Low Price Situation, According to Premier Taschereau—Means Whereby Government May Enforce Wishes Are Numerous, Providing Real Determination Exists

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., February 4, 1935—While Premier Taschereau has intimated that measures will be introduced into the Quebec Legislature at the present session which will "definitely solve" the question of low newsprint prices, from what can be gathered at present there is no clear-cut and definite plan. However, the means whereby the Government can make its will observed are numerous, providing there exists real determination to take the necessary drastic action.

The Government during the depression years has had in operation a consistent policy of helping the newsprint industry through reductions in ground rents leased to companies, through reductions in stumpage duties, and by the exercise of a policy of leniency, and even a measure of toleration as regards fines for infringements of regulations. This has helped the position of the companies, and also enabled the companies to cut more wood than they might otherwise have cut, and thereby there has been more employment. Such employment, however, it was disclosed at the last session of the legislature, resulted in rates of wages which were considered much too low, and complaints were prolonged and bitter, the whole matter becoming a fierce political issue.

The result was encouragement on the part of the Government toward better wages and conditions in the cutting season of last fall and the present winter, and because of this factor and diminishing wood piles it was believed prices would increase on the newsprint. It was under this encouraging attitude on the part of the Government, and because of the necessity due to higher costs, that announcement was made of an increase of $2.50 per ton for the first six months of 1935 and a second increase of $2.50 during the second six months, with some adjustments based on actual 1934 prices.

Newspaper Support for Taschereau

Commenting on Premier Taschereau's attitude towards the collapse of this new schedule of prices and the reversion to the 1934 schedule, the *Montreal Star* in an editorial entitled "Bravo, Taschereau!" says that the determination of the Premier to prevent at all costs the complete ruin of the pulp and paper business in this province will have the hearty support of all citizens who realize what a disaster the collapse of this basic industry would mean. The editorial continues:

"When Mr. Taschereau goes so far as to promise legislation, everybody concerned may be sure that he means business. He has already given the industry an abundance of time in which to set its own house in order. He has been very reluctant to intervene. He has taken the opinions of Premier Hepburn of Ontario and Premier Bennett of the Dominion before acting. But now it seems clear that he must act if the situation is to be saved.

"The objection to governmental interference in business will not weigh very heavily. It certainly cannot be presented by our American friends with a straight face. They have only to look at their own NRA to see how far this sort of thing can go, and they will be very well advised not to provoke the Canadian authorities into imitating their own President too closely in connection with an industry which so largely affects their own businesses. Governmental control of business is, indeed, in the air. Mr. Bennett has promised us that he will employ it to cure some of the temporary ills that now seem to disable the capitalistic system.

"Premier Taschereau's patience appears to have cracked —and not a day too soon. Parties interested may wisely act on the theory that the last warning has been given and that stern measures will now be taken."

Cleavage Between Provincial Governments

Following the above developments the prospects for price stabilization have been further obscured by the news that the Ontario Government is considering a reduction in stumpage and Crown dues on pulpwood cut in that province. In Quebec the Government has been threatening an increase in stumpage fees and Crown dues as reprisals against those mills which have failed to cooperate on the question of a higher price.

This indicates a cleavage of opinion between the governments of the two major newsprint producing provinces as to the most effective means of solving the newsprint problem. While Premier Taschereau favors holding stumpage fees over the head of the producers as a club to enforce a higher price, Premier Hepburn apparently is inclined to the theory that, if the mills can be assisted in the matter of reduced costs, the price situation will ultimately take care of itself. The Ontario Premier, it is indicated, may be willing to sacrifice, temporarily, the province's pulpwood resources with the idea of providing employment in the pulp and paper mills of the province.

Constructive Developments

On the constructive side, news that reorganization plans for Price Bros. & Co. and the Abitibi Power and Paper Company, which will end the receivership of these two important newsprint concerns, has been welcomed. In connection with this news is the report that three of the Abitibi company's mills will be converted from newsprint units into rayon mills. This would mean a reduction of 570 tons in the rated capacity of Abitibi's newsprint mills and almost 25 per cent of the company's total newsprint capacity. This, of course, would help relieve the market for newsprint, as the shadow of over-capacity is the leading bearish influence.

Lake St. John Power and Paper Co.

The annual report of the Lake St. John Power and Paper Company, Ltd., for the year ending December 31, last, shows a gain of $100,000 in operating profit and a substantial improvement in net working capital. After depreciation the company earned 63 per cent of its annual bond interest requirements for the year.

It is pointed out by A. Stewart McNichols, president of the company, that the payment of one bond interest coupon, recently announced, does not mean a formal resumption of interest payments on the bonds, but that it reflects the opinion of directors that profits, when earned may, as warranted by circumstances, be passed on to the bondholders.

SEND MR. McKITTRICK

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FIRST IN THE COUNTRY

Tomahawk Pulp and Paper Mills May Reopen

Purchase of Power Dam by Wisconsin Public Service Corp. Leads to Rumors That Idle Plant May Resume Operations—Group Interested In New York and Michigan Paper Mills May Take Over Plant—John Kieckhefer, of Kieckhefer Co., Optimistic

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., February 4, 1935—Interwoven with the purchase of a power dam at Tomahawk, Wis., last week by the Wisconsin Public Service Corporation is a rumor that the pulp and paper mills of the defunct Tomahawk Pulp and Paper Company may be placed back in operation.

The dam was purchased from Hall Brooks, receiver for the Tomahawk Hydro-Electric Company. Before negotiations can be concluded, a hearing must be held before the Wisconsin Public Service Commission, and is scheduled for 10 o'clock Tuesday morning, February 26, at Madison, Wis. Final authority is then expected to close the deal.

Details have not been announced as to the paper mill phase of the deal. It is reported in newspaper dispatches, however, that a deal was pending and was to be completed last week whereby a group interested in New York and Michigan paper mills would take over the Tomahawk Pulp and Paper Company's paper mill, which is understood to be on the land purchased with the dam by the Wisconsin Public Service Corporation.

The dam was originally owned by the Tomahawk Land and Boom Company, which leased it to the paper company, with which A. M. and C. B. Pride were formerly connected. A pulp mill was built in 1890, and a paper mill in 1895. No. 2 paper mill was built in 1905. The dam has a head of 12 to 14 feet and the pond covers 2,733 acres of land.

The Wisconsin Public Service Corporation became interested in the matter when the Tomahawk Land and Boom Company, because of its financial condition, was unable to keep the dam in repair. The latter company's charter was annulled by the Wisconsin Public Service Commission following court action because of its unsafe condition, and the owners were ordered to remove the dam. The utility was interested in preserving the mill as a power customer, together with the hundred or more workers who would be among its power consumers. The power company has agreed to make immediate repairs to protect the dam against spring floods, and will make a complete survey during low water stages to determine whether it must be rebuilt. The purchase price of the dam is reported to be $8,000.

Large Storage Reservoir Planned

Whether the Wisconsin Valley Improvement Company, of Wausau, Wis., a holding company of paper mills for control of water flow on the Wisconsin river, will be permitted to build a dam in Oneida county will be determined at a hearing scheduled by the Wisconsin Public Service Commission at Madison, Wis., February 27. The company intends to use the dam to create another large storage reservoir, and will build a supplementary dam on the St. Germain river to regulate the level of Pickerel lake. The proposed reservoir will flood 5,000 acres of land, 85 per cent of which has been purchased by the improvement company to date.

Further developments also have been announced relative to construction of a new government control dam for the Lake Winnebago level at the head of the lower Fox river at Menasha, Wis. The present timber-crib dam was built in 1887. It had been acquired by the government from the Wisconsin-Mississippi Canal Company in 1887. It is 347 feet long, with four sluice gates. War Department engineers have estimated the cost at $93,000, and this amount is included in the appropriation of $213,000 now before Congress for Fox river improvements. The new dam will be of concrete and steel construction.

R. F. C. Amendment Defeated

Wisconsin paper manufacturers who attempted to prevent Congressional action which would encourage new paper mills in an overcrowded field were defeated by the House last week in their efforts. An amendment was presented by Congressman Gerald Boileau of Wausau, Wis., to the bill extending the life of the Reconstruction Finance Corporation. It would prevent RFC loans to industries not already in existence, and was defeated without a record vote. Boileau told the House his amendment was designed principally to curb efforts to make funds available for erection of new paper mills in the south. Certain interests in the northern states and in Canada, Boileau said, have "poured millions into the paper industry in the south, and because of their cut-throat tactics have utterly ruined the paper industry in the north."

Paper Chemistry Institute Appointments

Two new appointments to the Institute of Paper Chemistry, Appleton, Wis., effective March 1 have been announced by Dr. Henry M. Wriston, director and president of Lawrence college. One of these is Dr. Friedrich E. Brauns, an authority on the chemistry of lignin and cellulose. He was educated in German universities, was associated with the University of Munich, and with the pulp laboratory staff at Koenigsberg. In 1926 he joined the staff of the Waldhof Cellulose Works, and since 1930 has been working with Professor Harold Hibbert in the department of cellulose and industrial chemistry at McGill university, Montreal. He will be a research associate in organic chemistry.

The other appointee is Dr. Johannes Van den Akker, who will become research associate and instructor in physics. He obtained his doctor of philosophy degree at the California Institute of Technology, and taught there until 1929. From 1930 to the present time he has been instructor in physics at Washington University, St. Louis, Mo. Dr. Isaac Samuel Aronovsky also has begun work at the Institute as resident fellow of the Northwest Paper Company, Cloquet, Minn.

Last week marked the fifth anniversary of the Institute. It now has 31 students, and a staff of 45, devoted to research projects as well as to instruction. The technical library has been built to 4,800 books and more than 100 technical periodicals. Its curriculum today embraces more than 25 courses. A division of physics has been a more recent development, with three men directing study and research in this field. Studies in fiber microscopy and photomicrography are being carried on as a major project. The scope of pulp and paper testing has been greatly enlarged. The Institute now has nineteen member mills.

Boston Paper Market Conditions Fairly Active

Demand for Various Grades of Fine Paper Somewhat Irregular—Mixed Reports Prevail In Coarse Paper Division—Box Board Section Continues Steady to Firm—Paper Stock Situation Improving, With Moderate Request From Board Mills

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., February 4, 1935—The amount of business transacted by the paper industry in Boston and vicinity averaged fair during the last week, although the effects of the storm in delaying deliveries the previous week and the subsequent extreme cold are reported to have lasted into the period under review. Reports from the fine paper division are mixed—"very quiet," "pretty fair," "fair," and "a little better than it was" being current comments. In the wrapping paper division reports were also mixed, such as "not much better than quiet," "fair," "fairly good," and "very good." The box board market was firm, but rather quiet, although the demand for material for shoe boxes continued.

The general situation in paper stock improved somewhat, with a moderate demand in some quarters. In others, it was quiet. Conditions in mixed papers, under old papers, remained practically the same, with an abundance of material in the hands of dealers. One consumer is paying $2.50 a ton, but at least three mills are paying $4.00 a ton for mixed paper. In roofing stock, under old domestic rags, there was more demand, with a firm to advancing tendency on No. 1, No. 2 and No. 3 grades. In bagging, new domestic rags and foreign rags, prices were unquotably changed.

Growth of John Carter & Co.

The current issue of John Carter & Co.'s Sampleteer, in connection with the 75th anniversary year of the concern, contains a sketch of John Carter, the founder of the company. Mr. Carter began his executive connection with the paper industry when he formed a partnership with his brother under the firm name of William Carter & Bro. Later this firm name was changed to Carter Brothers. They located at the corner of Milk and Hawley streets, where they were victims of the great Boston fire. At the death of William Carter the firm style became Carter Bros. The concern was located in a new building at 145 Federal street, later removing to 123 Franklin street, where the present name of John Carter & Co. became the official title.

The business grew steadily under Mr. Carter's able direction. Larger quarters were necessary, first at 61 Pearl street, then at 168 Congress street, and later at 100 Federal street. The company was incorporated June 1, 1903, as John Carter & Co., Inc., with Mr. Carter as president and treasurer; Arthur C. Hall, assistant treasurer, and Arthur Hooper, clerk. Mr. Carter's death occurred in May, 1908. Albert P. Carter was then elected president. Mr. Hall became treasurer and general manager. Mr. Hooper continued as clerk until his death in 1925, when Catano Fratus was made clerk of the corporation.

John Carter laid the foundation of a successful business by his close attention to details in the early years, and by his unfailing courtesy and good will shown to prospective customers just starting in business, many of whom are still valued friends of this company. Proud of the name it bears, the company executives have added to its prestige by conscientious effort to serve well the printers of New England.

The Sampleteer contains many pungent paragraphs in its sixteen pages, including the following:

"If you would have your craftsmen produce fine things, let them see fine things to emulate. The paper mills turn out excellent specimens, for the edification of shopmen, proprietors and printing buyers interested in good things rather than cheap stuff.

"To bring these specimens to you is part of the job of the live paper house and its representatives. It is true that the paper man gets his living out of orders rather than uplift, but it is also true that his interest in you goes further than your function as meal-ticket."

News of the Trade

A wooden storehouse, filled with waste paper, property of the South Bay Paper Stock Company, of which Joseph Luca is the head, was destroyed by fire at 469 East First street, South Boston, between H and Vicksburg streets, Wednesday morning. In order to extinguish the flames it was necessary to pull down the front wall of the store house. The building is understood to have contained several hundred bales of waste paper, each weighing 1,500 pounds. The loss on building and contents is estimated at about $20,000.

The Crystal Tissue Company, Middletown, Ohio, is distributing among customers in New England a portfolio, "Promoting Prestige," containing sample sheets of its complete line of wrapping tissues, accompanied by descriptions.

The Brown Company, paper manufacturers, whose main office is in Portland, Me., are issuing new price lists, as of February 1, on Fourdrinier papers for envelopes, coating and wrapping.

Robert MacDougall, of the International Paper Company, New York, addressed the salesmen of John Carter & Co., Inc., Saturday morning. Leon M. Poore, director of sales, presided.

Clifton S. Hall, manager of the envelope department of John Carter & Co., Inc., is back on the job after an illness of several weeks.

Paul Beach, New England representative of the Riegel Paper Corporation, New York, and Mr. Gordon, of the Smith Paper Company, Lee, Mass., called on the trade last week.

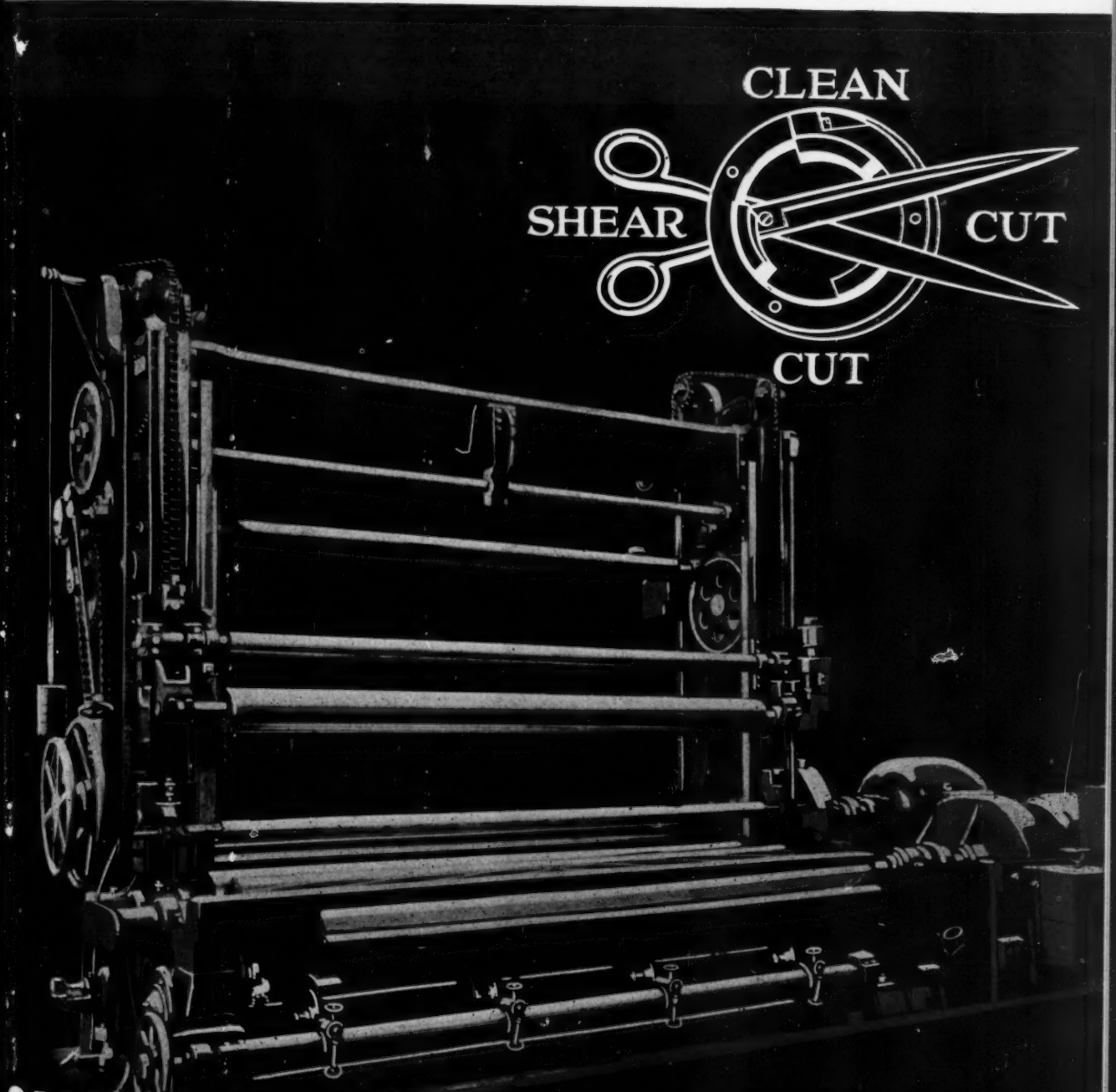
Edward D. Bement, a director of Carter, Rice & Co., Corp., was injured in a railroad accident in Framingham, Mass., Friday morning, so that he was unable to come to his office. He was on the way to Boston from his residence in Framingham, when a gasoline motor-bus in which he was riding on the tracks of the New Haven Railroad crashed through a switch 200 yards from the Framingham station and ran into a freight train on a siding. Many other passengers were injured.

Schroon River Pulp & Paper Co. Busy

[FROM OUR REGULAR CORRESPONDENT]

WARRENSBURG, N. Y., January 28, 1935—All departments at the plant of the Schroon River Pulp and Paper Company are running night and day following a rise in the level of the river here. Orders on hand insure steady operations of the newly reorganized concern for the remainder of the winter at least and many of the local residents are guaranteed employment for some time.

WINDERS *and* REWINDERS



SAMUEL M. LANGSTON COMPANY, *Camden, N.J.*

Demand for Paper Expands Materially In Chicago

Various Grades of Fine Paper Reported In Better Request Than of Late—Book and Cover Papers Move Into Consumption More Freely—Kraft Wrapping Paper Situation Gradually Improving—Paper Board Market Continues Practically Unchanged

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., February 4, 1935—The newsprint market this week injected a somewhat disturbing influence into the Chicago newsprint and ground woods headquarters. The lowering of the price of newsprint to the 1934 schedule after much hope had been placed on the new plans for 1935 proved disappointing and found newsprint executives here in many instances planning for a forced return to the old price at least until March 31. The change was felt also in a ground wood market which is reported to have been on the verge of better days.

Otherwise the market gave a good account of itself with the fine papers reporting even better performances than those of last week. Book and cover jobbers and sales representatives here also found solace in reported pickup in demand and in a general widening of the scope of the market. Krafts were stronger and said to be in better demand while the specialties market is also reported to have registered some improvement. Paperboard showed little or no change over the previous week, the same report coming from the waste paper market with the exception of a few grades reflecting the improvement in fine papers.

Kraft manufacturers held a meeting in Chicago last week and thoroughly discussed the market situation. It is reported that "gentlemen's agreements" were reached reflecting a desire to strengthen both the Southern and Northern kraft markets in lieu of the present suspension of the open filing of prices method. The markets are reported to have given a good account of themselves during the week in view of existing situations.

Plans for Paper Week

An unusual feature of the preparations for the Chicago invasion of New York at the time of the paper industry annual sessions, is the amount of reservations coming in where both the husband and wife are making the trip together. Whether this trend is because the wives feel they need a closer check on their husbands or not, it is becoming quite the faddish thing to take the ladies on the big annual excursion. At any rate, the forthcoming annual sessions of the industry at the Waldorf-Astoria should be graced by the presence of more ladies than ever before. And while they may not be present at the business session they are certain to be in evidence at all hours when the gavel of presiding chairmen is hushed.

G. R. Brazeau Addresses Paper Salesmen

G. R. Brazeau, an executive of the Weyerhauser Timber Company, was the guest speaker at the Monday, January 28, meeting of the Mid-West Division, Salesmen's Association of the Paper Industry. Mr. Brazeau gave the salesmen present an interesting account of the pulp industry, spoke of competitive conditions, discussed the imports of various qualities of pulp and analyzed the pulp market from both a domestic and foreign viewpoint. Mr. Brazeau had charge of the arrangements for the special train which a few months ago took a number of midwest pulp and paper executives to the annual TAPPI meetings on the west coast.

The SAPEYES are assisting in the preparation of the slate of officers to be presented for election at the annual meeting of the association in New York on February 19. The local nominating committee is composed of Chairman J. H. Coy, Flambeau Paper Company; H. R. Knott, Eastern Manufacturing Company; Fred P. Whiteley, Howard Paper Company and Bob Butterworth, recently retired executive of the Champion Coated Paper Company, who still maintains an active interest in all paper proceedings. Inasmuch as the Mid-West Division hopes to elect a westerner for the presidential chair, interest is running unusually high. Those planning to go to New York are also interested in the luncheon program, which includes an address by John Dickinson, Assistant Secretary of Commerce. Reservations are being sent to Dr. E. O. Merchant, Room 2922, Graybar Building, New York City.

News of the Trade

Extensive preparations are being made for the fifth annual packaging exposition and conference to be held at the Palmer House in Chicago on March 5 to 8. Problems in relation to production and use of packages and to design of packages are scheduled to be covered during the three day meeting held under the supervision of the American Management Association.

The February issue of the Link-Belt News contains, among other interesting items, the news that illustrated folders are available on Link-Belt Shovels, Cranes and Drag lines and several features devoted to various uses being made of Link-Belt products throughout the world.

Salesmen in the Moline, Ill. offices of the Newhouse Paper Company joined forces earlier in the month with sales representatives in Des Moines, Minneapolis and St. Paul to attend an inspirational sales meeting held in the Minneapolis headquarters of the company. Arrangements for the meeting and the greater part of the splendid program were made by Cliff Marvin, sales manager of the Newhouse Paper Company. Address by well known executives of paper mills and paper distributing firms; educational sessions at which various problems pertaining to the industry were discussed and a most enjoyable banquet made up the program.

The Swigart Paper Company, as of January 31, has issued a notice to the effect that plain envelopes, in all grades, sizes, weights and colors may be assorted in not less than a full box of an item to obtain the quantity price. Assortments do not apply to wedding and announcement envelopes. Included with the special trade announcement were samples of three of the Swigart envelope line, including Columbian Clasp in 33 stock sizes; the "Postage Saver" and the "Mono-Outlook." Each carries a sufficient amount of art work and copy to make the specimen effective as an advertising medium.

Crystal Waxing Co. Elects Officers

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, February 4, 1935—At the annual stockholders' meeting of the Crystal Waxing Company, an affiliate of the Crystal Tissue Company of Amanda, south of here, the past week Z. W. Ranck was retained as president; W. O. Barnitz as secretary-treasurer, and L. J. Long was elected vice president.

Toronto Paper Market Displays More Strength

Business Transacted During January Reported Considerably Ahead of Corresponding Period Last Year—Fine Paper Mills Operating at Better Capacity—Steadiness of Quotations Lends Stability to Situation—Aid to Paper and Pulp Industries Promised

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., February 4, 1935—Business in the paper line during January was, so the trade reports, considerably ahead of the corresponding month last year. Collections are improving and orders are coming in more freely. The tissue mills report a gratifying gain and book and writing plants are operating to better capacity. It is understood that an arrangement prevails between the producers and the wholesalers that the prices, which have been in effect for some time, will remain unchanged for the next six months, and this will lend stability to the situation. In regard to newsprint prices the Hon. Mitchell F. Hepburn, Premier of Ontario, states that his government will cooperate with the Taschereau government in Quebec. Mr. Hepburn is keeping in close touch with Mr. Taschereau and will work unitedly in an effort to stabilize conditions.

To Give Aid to Paper Industry

The Ontario government is moving to give aid to the pulp and paper industry and the question of reducing Crown dues on pulpwood will be given consideration by the cabinet at an early date. A careful study has been made of the whole situation, according to Premier Hepburn. The desirability of some method of preventing independent companies from wasting the resources of the province in keen competition has been studied. Mr. Hepburn added that Ontario wanted exporters to agree among themselves and not to engage in ruinous competition. He pointed out that the Ontario government some months ago reduced the Crown dues and stumpage fees for the lumbermen of the province, with the result that ten thousand men have been added to the number working in the bush and the revenue of the Department had been increased by reason of enlarged operations. The government would try to give the same help to the pulp and paper industries.

T. Stewart Lyon, chairman of the Ontario Hydro Commission, when asked whether the Dominion Construction Company had received the $500,000 payment authorized by an order in council on account of the Abitibi Canyon improvement development by the late Henry government in its last days, stated that the question of the bill was under negotiation. The whole account comes to something over $3,000,000. The Dominion Construction Company says that all the work is done but the Commission asserts that it is not. The question now was how much of the bill, if any, the Commission was responsible for. The Commission was simply the agent of the Ontario government, which had the final word in any settlement, Mr. Lyon declared.

Hinde & Dauch Earnings

For the last fiscal year ending December 31, 1934, the earnings of the Hinde & Dauch Paper Company of Canada, Toronto, were trebled. The net profit was $239,176, as against $78,929 in 1933 or at the rate of 79 cents per share on the common stock. 1934 was the best year reported by the company since 1928. The net earnings were up $546,400 from $344,123 and after the regular depreciation, bond interest, income tax and other charges and the dividend of twelve and a half cents paid in December, there was a surplus of $201,683 against $78,820 in the previous year. Since the beginning of 1934 the company has reported steady improvement with production running twelve per cent above 1933. Progress is attributed to a better general demand for cardboard containers in which the concern specializes.

Sidney Frohman, president of the company, in his annual statement, stated that the property and equipment had been maintained and brought to a higher point of productivity and efficiency and, to this end, there had been expended in plant betterments in 1934 the sum of $52,426.47. In regard to the payment of dividends of twelve and a half cents on the common stock, Mr. Frohman added that it was the hope that similar disbursements might be made on a quarterly basis during 1935 depending, of course, upon the then earnings.

Newsprint Mills to Make Rayon

The Hon. Peter Heenan, Minister of Lands and Forests for the Province of Ontario, states that the idle newsprint mills at Fort William, Espanola and Sturgeon Falls will be reconstructed for the production of sulphides for making artificial silk. He added that he was negotiating between controlling interests and representatives of United States and Canadian capital and that the remodelling work would be undertaken and would start early in April. This would give substantial relief to the unemployment situation in the districts where the mills are located. Mr. Heenan believed that Canada would be able to recapture the sulphide market which has been taken by Scandinavian interests. He indicated that those behind the move would approach the Ontario Hydro-Electric Commission for a contract for electric power. Ontario, he declared, had gone to the extreme in the output of newsprint and it now behooved the authorities to alter these idle mills and go into another line of production. The market for sulphides to be used in the artificial silk industry was available. The department had gone into the question of tariff and the situation was satisfactory.

Fort William Paper Mill

Recent advices from Fort William, Ont., say that the situation with regard to the Fort William paper mill and the Kaminisitquia Power Company is one that might well repay considerable study on the part of the heads of the city organizations and that some sort of pressure should be devised and brought to bear either by the city or the Ontario government, or both, which should be sufficiently strong to compel the re-opening of the newsprint plant which has been shut down for a long period. All the money spent on the extensions of city services to the plant is today so much waste. The Fort William Paper Company has its own timber limits. There is a good mill, power available for it, and an abundant supply of raw material, and that it should be closed tight for some years due to the peculiar financial situation which brought the pulp and paper industry to its present pass, seems, accord-

ing to the Fort William authorities, unreasonable when mills not so favorably situated are running.

News of the Trade

United Paper Mills, Ltd., wholesale paper dealers, are moving from their present quarters at 129 Spadina Avenue to their new home at 51 Wellington Street West, Toronto. The company some time ago purchased the W. G. Patrick Building, which is a large and commodious one and well suited for the expanding business of the United Paper Mills, of which R. I. Finlay is president.

H. B. Donovan, head of Canada Paper "Wholesale," Ltd., Toronto, who has been confined to his home for some weeks owing to illness, is making steady progress toward recovery. Mr. Donovan is one of the most widely known members of the paper trade.

A. G. Pounsford, manager of the Port Arthur unit of Provincial Paper, Ltd., spent a few days in Toronto recently on business.

The possibility of provincial charters being granted to foresters in Ontario was raised by J. O. Wilson, President of the Quebec Society of Forest Engineers, at the annual convention of the Canadian Society of Forest Engineers recently held in Toronto. He told of the legislation enacted in Quebec which gives chartered foresters in that province the exclusive right to practice their profession. The public and also the industry are protected by this method. The insistence by the province upon charters placed foresters on the same professional basis as doctors, lawyers and civil engineers.

Howard Smith Paper Mills, who have large plants at Cornwall, Ont., will shortly issue their annual report and it is expected to show expansion in earnings as compared with the previous year. Net is anticipated to reveal approximate dividend requirements and this would compare with about three dollars per share earned in the previous year. Having regard to the fact that no dividends were paid, further improvement in the balance sheet position appears assured. Bank loans, which a year ago stood at $1,427,500, were cut to $756,000 and probably will have been pared to relatively small proportions if not wiped out altogether. This would place the company in a position where any material improvement in earnings in 1935 would make resumption of dividends on the preferred stock a real possibility.

Commercial Standard for Binders Board

A pamphlet entitled "Binders Board for Bookbinding and Other Purposes, Commercial Standard CS50-34," has just been released by the National Bureau of Standards. It records the voluntary understanding, accepted by the binders board manufacturers, bookbinders and book publishers, as a national basis for purchase, inspection, acceptance tests, and certification of quality of binders board.

The requirements covered include bundle weight, thickness, bursting strength, flexural properties, color, density and trim allowance, as well as methods of test.

The pamphlet includes a brief history of the project, the membership of the Standing Committee which reviews proposed revisions, and a list of official acceptors. The standard became effective for new production October 1, 1934. According to producers and users, the standard will serve as a basis for fair competition and will tend to eliminate much of the misunderstanding and uncertainty of the past in the purchase of this commodity. The original draft was prepared by the Binders Board Manufacturers' Association, and was based on data obtained at the Bureau.

Cleveland Fine Paper Exhibit

The accompanying illustration shows the paper exhibit in the recent Cleveland Industrial Exhibition made by representative paper merchants of Cleveland, including the Alling & Cory Company; the Central Ohio Paper Company; the Cleveland Paper Company; Millcraft Paper Company; R. C. Noble, Inc.; Petrequin Paper Company and the Union Paper and Twine Company. In nine days this Show drew an enthusiastic attendance of 227,000.

The paper exhibit, a co-operative venture on the part of seven local houses was unusually attractive and aroused much favorable comment. No brand publicity was used in any way.

A continuous paper making movie showed on a screen mounted on the opposite side of the booth in the right

PAPER EXHIBITED BY REPRESENTATIVE MERCHANTS

foreground. The display of wood content paper raw materials on the right of the center name panel, balanced the one for rag content papers on the left. A large replica of the National Association emblem also was shown on the right side. Across the top, behind the slogan, two rows of paper flutes showed the complete spectrum with heavy colors in the front row and pastel shades in the rear row. This portion was illuminated with 40-100 Watt bulbs attached to a flasher which alternately illuminated each bank.

Logging Camps in Adirondacks Busy

CARTHAGE, N. Y., February 6, 1935—Logging camps in the Adirondacks are exceptionally busy and millions of feet of pulpwood will be delivered to paper mills in Northern New York in the near future. Modern methods and equipment have replaced much of the adventure in the camps while the lumberjacks also receive good wages. Among the cuts this winter is 3,000,000 feet of pulpwood in the Bog River section on land owned by the International Paper Company where nearly 100 men are at work. About 2,500,000 feet of timber is being cut near Meacham Lake and this will be delivered by tractors to industries at Tupper Lake. In the Hollywood section on the Raquette River a large contract is being handled for mills at Potsdam while several thousand cords of pulpwood have already been cut on the Whitney property and the Big Moose section. In the Luzerne district about 75 men are being employed and it is expected that half of a million feet of timber will be razed. Operations have been carried on for several months and the pulpwood is being delivered by truck to the Palmer Falls plant of the International Paper Company.

Obituary

Robert D. Mossman

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., February 4, 1935—Robert Dumas Mossman, aged 93, widely known in the paper-making industry of the United States from 1861 until his retirement in 1906, died at his residence, 102 Brook road, Milton, Mass., February 3.

Mr. Mossman was a native of Edinburgh, Scotland, where he was born January 25, 1842, son of the Rev. William Mossman, a well known Presbyterian minister. His mother was Janet Cookman.

Mr. Mossman received his early education in his native city and was apprenticed in the paper-making trade. Showing marked aptitude, he was sent to this country to introduce the machine system. He arrived in the United States in 1861, and had various connections in and around Boston before going to Maine, where he was associated with S. D. Warren Company and other companies.

For several years he was in Bristol, N. H., and early in 1870 became associated with Tileston-Hollingsworth Company, with mills at Hyde Park, Milton, Dorchester and Groton, Mass. For 35 years he was general manager and director of this large enterprise, retiring in 1906 to devote his time to travel and gardening.

In 1875 he removed to Mattapan, remaining there until he went to Milton to live in 1919. He was married in 1865 to Miss Sarah Knight of South Windham, Me., who died in 1909. A son, William Mossman, died in 1909. A daughter, Miss Mary Mossman, is living.

In January, Mr. Mossman received from Macedonian Lodge of Masons a jewel commemorative of more than fifty years membership in the lodge, of which he was a charter member. He was a member of Masonic bodies for 68 years. He was a life member of the Massachusetts Charitable Mechanics Association, a director of the Dorchester Co-operative Bank, and up to its merger with the Federal National Bank, a director of the Mattapan National Bank.

Lowell N. McIntyre

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., January 19, 1935—Word reached here this week of the death at Southboro, Mass., of Lowell N. McIntyre, former superintendent of several paper mills in this section. He was 61 years old. He became identified with paper-making in his early youth and served as superintendent at the old Remington Paper Mills in this city for several years. He was also connected with mills at Brownville and Glens Falls in a similar capacity. About twenty-two years ago he left here to embark in the paper manufacturing business at Fayetteville but disposed of his interests some time ago. His wife, a son and two brothers are the principal survivors.

Watson A. Yule

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., January 28, 1935—Watson A. Yule, of Chicago, a director of the Fort Howard Paper Company, Green Bay, Wis., died while in Green Bay last week of a cerebral hemorrhage. For thirty years he was a representative and in recent years a director of F. C. Huyck & Sons, Inc., Albany, N. Y. In early years he had been in the paper manufacturing business at Alexandria, Ind., where his uncle, the late S. A. Cook, of Neenah, Wis., had a mill. Mr. Yule was 65 years old. Funeral services were held in Chicago, and burial took place at Aurora, Ontario, Canada. His widow and three brothers are the immediate survivors.

Thomas M. Falvey

BOSTON, Mass., February 4, 1935—Thomas M. Falvey, aged 81, who was retired from Carter, Rice & Co., Corp., three years ago, when he had completed his 50th year with the concern, died at his residence, 187 Chestnut street, Needham, Mass., Saturday afternoon, after a long illness.

He was born in Boston and went to Needham to live 39 years ago. He was a charter member of Needham Council, No. 1611, K. of C. and a member of Sherwood Court, No. 8, M. C. O. F.

A son, Thomas J. Falvey, of Newton, Mass., and four daughters, Mrs. Grace Falvey; Mrs. Franklin E. Allen, of Oregon; Mrs. Charles Bradshaw of Dover, Mass.; and Mrs. Thomas Kennedy, of West Roxbury, are living.

Bids and Awards for Government Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., February 6, 1935—The Governernment Printing Office has received the following bids for 12,600 pounds of cream white laid cover paper; all at 13.09 cents per pound: R. P. Andrews Paper Company, Baxter Paper Company, Walker-Goulard-Plehn Company, Inc., Reading Paper Mills, Inc., and H. C. Davis Paper Company.

Reese & Reese have been awarded the contract for furnishing the Printing Office with 8,010 pounds (30,000 sheets) of 38 x 38 sulphite manila paper at 6.12 cents per pound, bids for which were received on January 25.

The Government Printing Office has received the following bids for 125,000 sheets of 22½ x 28½ white cardboard; at $20.43 per M sheets: R. P. Andrews Paper Company, Whitaker Paper Company, Barton, Duer & Koch Paper Company, and Reese & Reese and at $19.70, Dobler & Mudge.

Paper Machinery Authority to Meet

A meeting of the Permanent Code Authority for the Pulp and Paper Machinery Industry, which is a subdivision of the Machinery and Allied Products Industry, will be held on Wednesday, February 20, at 10:30 A.M. at the Waldorf Astoria Hotel in New York City.

Following the meeting of the Code Authority, there will be held meetings of the Pulp and Paper Machinery Industry and also of the Pulp and Paper Machinery Association.

Phillips Dennett, president of the Bird Machine Company is chairman of the Code Authority and also president of the association.

Now Hoskin Paper Co.

MENOMINEE, Mich., February 4, 1935—At the annual meeting of the stockholders of Hoskin-Morainville Paper Company held at its office in Menominee, Mich, January 23, 1935, it was unanimously voted to change the name of the company from Hoskin-Morainville Paper Company to the Hoskin Paper Company. The same management, stockholders, directors and officers continue as before.

The company will continue under the new name to make high grade wrapping papers, grocery bag paper, grocery bags and also all the special papers so well known under Hoskin Brands.

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Rothschild, Wis.—The Marathon Paper Mills Company has approved plans and will proceed with superstructure for new addition to Mill No. 1, Rothschild, near Wausau, to be used for production of boxboard packages for ice cream and other service. No estimate of cost has been announced. Proposed to have building ready for equipment installation at early date. R. H. Kelly is superintendent at paper mill.

New Haven, Conn.—Connecticut Card and Paper Corporation, recently organized with capital of $50,000, plans operation of a local paper converting plant. New company is headed by Harry B. Goldstein and Nathan Rubin, 177 Church street, New Haven.

Detroit, Mich.—Detroit Paper Products Corporation, 5800 Domine street, has rejected bids recently received on general contract for new building for storage, distribution and office service. Revised plans will be drawn at early date and new bids asked. Robert Swanson, Bloomfield Hills, Detroit, is architect, in charge.

Cleveland, Ohio—The Bonnar-Vawter Fanform Company, 6605 Clark avenue, S.W., manufacturer of paper blanks for teletypes, calculating machines, etc., has awarded general contract without competition for improvements and alterations in former local plant of the Morgan Lithograph Company, East Thirtieth street, near Superior avenue, recently acquired for new plant, as previously noted in these columns. The H. K. Ferguson Company, Hanna Building, city, contractor for the work, will begin operations at early date. The new plant totals about 75,000 square feet floor space and company will increase capacity on occupancy. Present factory will be removed to new location.

Appleton, Wis.—The Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis., has work under way on extensions and improvements in power plant at Interlake Pulp and Paper Company Division, Appleton, including remodeling of present structure and installation of new equipment. Work is estimated to cost over $30,000, with equipment. Program will be carried out largely by company forces. Thomas Utegaard is company engineer.

Chicago, Ill.—The Acme Paper Box and Case Company, Inc., has been formed with capital of 100 shares of stock, no par value, to manufacture paper boxes and containers. New company will take over and operate the organization of same name, with local plant at 2427 West 14th street.

St. Louis, Mo.—Loose Leaf Metals Company, 6816 Arsenal street, manufacturer of leaf metal specialties, etc., has approved plans for new addition to plant at 6808 Arsenal street, to be one-story, 65 x 100 feet. New structure will be used primarily for storage and distribution. General contract has been let to the Conduit Contracting Company, 2317 Tennessee street, city, which will proceed with superstructure at once. Cost over $25,000, with equipment.

Dayton, Ohio—The Central Ohio Paper Company, 201 East Sixth street, has taken out a permit for new one-story shed addition at storage and distributing building, address noted, and will proceed with work at once. It will be used for expansion in storage facilities.

Richmond, Va.—duPont Rayon Company, 350 Fifth avenue, New York, N. Y., manufacturer of cellulose rayon products, has awarded contract to the B. F. Sturtevant Company, Hyde Park, Boston, Mass., for installation of a complete air-conditioning system at its Spruance Mill No. 2, and improvement will be carried out at early date.

Cincinnati, Ohio—The Clopay Corporation, York and McLean streets, manufacturer of paper goods, has awarded general contract to Frank Messer & Sons, Inc., 2515 Burnet avenue, Cincinnati, for new one-story addition to plant, recently referred to in these columns. Work includes a top story extension to present plant, and will cost over $25,000, with equipment. Carl J. Kiefer, Schmidt Building, city, is consulting engineer.

Albany, N. Y.—The W. H. Smith Paper Corporation, Albany, has filed notice of increase in capital from $100,000 to $200,000, for general expansion.

New York, N. Y.—It was stated in this department in the issue of November 22, 1934, that "Harry Charnas & Co., Inc., 28 West 25th street, wholesale paper stocks, has leased space in building at 28 East Twenty-eighth street, and will occupy for new local headquarters, storage and distribution." Harry Charnas & Co. write that there is no basis for such a statement. They are continuing in business at 28-30 West 25th street and have made no public announcement of any change in location.

Kalamazoo, Mich.—The Sutherland Paper Company, has taken out a permit and will soon begin superstructure for new two-story addition to mill, 110 x 340 feet, lately noted in these columns, for which general contract has been let to the O. F. Miller Company, Kalamazoo. It is proposed to have unit ready for occupancy at early date. Expansion will cost in excess of $85,000, including equipment.

Cornwall, Ont.—The Howard Smith Paper Mills, Ltd., 407 McGill street, Montreal, Que., has plans under way and will soon take bids on general contract for new addition to pulp mill at Cornwall, including two or more new units and installation of additional machinery. A new laboratory will be built. Entire program is reported to cost over $75,000, with equipment. B. D. Millidge is manager at the mill.

New Companies, Etc.

Chicago, Ill.—The Ellingsworth Manufacturing

Company, 200 South Peoria street, has been incorporated with capital of 50 shares of stock, no par value, to manufacture paper goods of various kinds and allied products. The incorporators are Albert B. Lidy and John F. Shea.

Detroit, Mich.—The White Paper Supply Company, Inc., Chicago, Ill., an Illinois corporation, has filed notice of organization with capital of $25,000, to operate in Michigan. John H. Thomas, 1917 St. Antoine street, Detroit, is company representative.

New York, N. Y.—The Atlas Roll Leaf Corporation has been organized with capital of 200 shares of stock, no par value, to manufacture and deal in metallic paper specialties, including gold, silver and aluminum leaf. The incorporators include Bernard B. Smith and Harold Gilbert, 350 Madison avenue, New York.

New York, N. Y.—The Supreme Paper and Twine Company, Inc., has been incorporated with capital of $50,000, to deal in paper products. The incorporators include Morris Wolper and Louis Zuckerman, 447 West Thirty-sixth street, New York.

Trenton, Mich.—The Story Parchment Company, operating with capital of $50,000 and 4000 shares stock, no par value, has filed notice of company dissolution under state laws.

London, England—British Cellophane, Ltd., has been chartered with capital of 900,000 Pounds (about $4,400,000) to manufacture and deal in transpanent and other paper products, viscose specialties, etc. Hugh D. P. Francis, 62 London Wall, London, E. C. 2, is one of the principal incorporators.

Doane Carton Expands

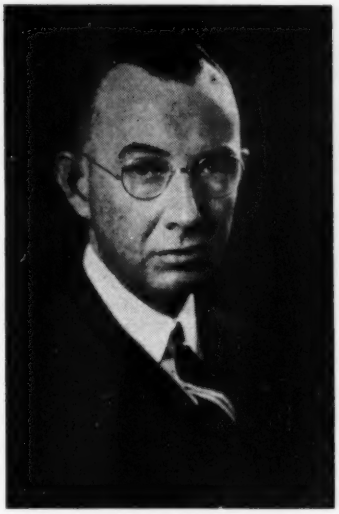
The Doane Carton Company, 912-922 North Market Street, St. Louis, recently incorporated its business with increased capital, henceforth to be known as the Doane Carton Company, Inc.

W. W. Doane, who originated the business 30 years ago and has operated the plant ever since, heads the new organization as president.

R. K. Withrow, who for the past 15 years was connected with the Graham Paper Company, St. Louis, in charge of their specialty division, joins the organization as vice-president, directing sales.

Since its inception, this company has specialized in the manufacture of paraffined butter, ice cream, lard and shortening cartons, special and stock folding cartons such as suit boxes, cake, millinery and laundry boxes, doing a national business.

W. W. DOANE



R. K. WITHROW

Mr. Doane states that there will be no changes in the policies which have built this business but that with the increased capitalization it is the plan to enlarge their operations.

Indianapolis Paper Market Steady

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., February 4, 1935—Steadiness seems to be the chief feature of the local paper market. Demand is holding its own in most lines and there are indications of a pick-up in business this month. Volume in nearly every line will show a slight increase over January of a year ago. Prices are being well held.

Newsprint seems exceptionally well situated. The Indiana papers have shown a slight increase in lineage and demand has reacted accordingly. Printers report only a fair business, however, and the demand for fine papers is only average. The most of the catalogue work for this year has been completed, though there is a fair amount of direct mail literature being sent out.

Box and container factories are in a fortunate position as compared with a year ago. Most of the Indiana factories are working on the usual schedules with order files in good condition and inquiries plentiful. Demand for tissues is increasing slightly. There have been some inquiries reported for summer specialties, but the demand has not opened up as yet. This business is not expected to show any definite trend until after the first of next month. Most of the factories are keeping their inventories low until March 1 when the annual assessment lists are made out on which taxes will be paid the following year.

For the first time in five years, the building and roofing paper business is showing some signs of life. Local jobbers believe this year will see quite a lot of repair and remodeling work done. Inquiries from dealers out in the state show a trend in this direction. It is not believed there will be any great amount of new construction, but the housing act has begun to be operative here and newspapers are carrying a lot of propaganda designed to create remodeling and repair work.

Paper stock men say their condition is little changed. Mills are taking only small quatities and for the most part paying prices are not what the local trade wants.

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Henry J. Berger
Editor

Ronald G. Macdonald
Editor Technical Section

Herbert J. Laughton
Associate Editor

Thomas J. Burke, C. A.
Editor Cost Section

Lynne M. Lamm
Washington Correspondent

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COMING EVENTS

AMERICAN PAPER AND PULP ASSOCIATION, Fifty-Seventh Annual Convention and Meeting, Waldorf-Astoria Hotel, New York, February 18-21.

TECHNICAL ASSOCIATION OF THE PULP AND PAPER INDUSTRY, Convention, Waldorf-Astoria Hotel, New York, February 18-21. Annual Luncheon, Waldorf-Astoria Hotel, Thursday, February 21.

SALESMEN'S ASSOCIATION OF THE PAPER INDUSTRY, Annual Meeting and Luncheon, Waldorf-Astoria Hotel, New York, Tuesday, February 19.

NEW YORK ASSOCIATION OF DEALERS IN PAPER MILL SUPPLIES, Annual Banquet, Hotel Commodore, Wednesday, February 20.

NATIONAL PAPER TRADE ASSOCIATION OF THE UNITED STATES, Convention, Waldorf-Astoria Hotel, New York, February 18-21.

FOREIGN PAPER TRADE EXPANDS

Exports of paper and paper products from the United States continued to show improvement during November, shipments to foreign countries during the month reaching an aggregate value of $1,807,934, according to the Forest Products Division of the Department of Commerce. This amount is slightly above the August figure, which was the highest recorded for any one month since July, 1931. The increase in the value of our paper exports has also been accompanied by a corresponding increase in volume of most commodities falling in this schedule.

Exports of newsprint paper, which consistently showed a healthy gain during 1934 over the preceding year, were 30 per cent higher than in November, while exports of uncoated book papers doubled, and exports of surface-coated papers increased by 10 per cent. Exports of miscellaneous wrapping papers exceeded the October shipments by nearly 15 per cent and more than trebled the November 1933 shipments. The foreign trade in greaseproof and waterproof papers had been slower in picking up but an increase of 70 per cent took place in November shipments, as compared with the preceding month, and 90 per cent over the corresponding month in 1933. Overissue newsprint shipments for November did not show much change.

Exports of writing paper were nearly 30 per cent over the October shipments, but show an increase of only 15 per cent compared with November, 1933. Exports of tissue and crepe papers, however, nearly doubled as compared with October and were two and one-half times as large as in the preceding year. Exports of vulcanized fiber increased between 70 and 75 per cent, but shipments of boards generally failed to show any notable improvement compared with the preceding year. Box board shipments were 20 per cent higher than in October, but this increase was offset to some extent by a decline of 10 per cent in other boards.

Exports of paper base stocks from the United States during November were valued at $648,862, a decrease of 10 per cent compared with October but an increase of 45 per cent over November, 1933. Shipments comprised principally 9,352 tons of sulphite pulp and 3,416 tons of rags and other waste for paper stock.

The United States imports of paper and paper products declined slightly during November, due largely to a decrease from 179,595 tons to 173,564 tons in receipts of standard newsprint. Imports of cigarette papers and a few other items on this schedule were also less than in October, but these decreases were more than offset by increases in imports of printings (other than newsprint), kraft wrappings, writings, tissues, and leatherboards, testboards, and wallboard. Total imports of paper and paper products during November were valued at $7,625,716, of which $6,745,694 represented newsprint and $880,022 other paper and boards. Similar importations during October were valued at $6,990,106 and $837,796 respectively.

Imports of paper base stocks into the United States also declined during November, with the heaviest decreases recorded in receipts of pulpwood and waste stock. Imports of chemical pulp declined on an average of 10 per cent, the largest drop occurring in receipts of unbleached sulphate (kraft) pulp and the smallest in bleached sulphite. An exception to the general downward trend, imports of mechanical pulp increased more than 10 per cent. Total imports of basic stocks for the month of November were valued at $6,505,330 representing 67,924 cords of pulpwood valued at $477,456, 147,114 tons of wood pulp valued at $5,823,525, and 5,310 tons of rags and other waste valued at $204,349. Imports during the preceding month were valued at $7,396,348.

DECEMBER NEWSPRINT STATISTICS

Production of newsprint in Canada during December 1934 amounted to 239,544 tons and shipments to 254,657 tons, according to the Newsprint Service Bureau. Production in the United States was 79,777 tons and shipments 86,363 tons, making a total United States and Canadian newsprint production of 319,321 tons and shipments of 341,020 tons. During December, 24,394 tons of news print were made in Newfoundland and 1,820 tons in Mexico, so that the total North American production for the month amounted to 345,535 tons.

The total North American output of news print paper

in 1934 was 3,892,887 tons, of which 2,599,292 tons was made in Canada, 957,196 tons in the United States, 316,119 tons in Newfoundland and 20,280 tons in Mexico. The Canadian output was 28.9 per cent more than in 1933, than in the United States 1.1 per cent more, with a gain of 16.7 per cent in Newfoundland and a 23.9 per cent gain in Mexico, making a total continental increase of 642,570 tons, or 19.8 per cent. Reports from United States mills for earlier years included a small amount of poster, novel and similar paper, but the 1934 figures are confined strictly to news print.

Stocks of news print paper at Canadian mills are reported at 30,366 tons at the end of December and at United States mills 12,428 tons, making a combined total of 42,794 tons compared with 58,261 tons on December 31, 1933.

Paper Mills in Alabama

"Reports today indicate," says *Star* of Anniston, Ala., "that the movement to establish another paper mill in Alabama has approached nearer to its objective following an agreement reached by Governor Bibb Graves and leaders in the enterprise on a plan to provide tax exemption for several years to paper plants located in this state. Governor Graves is said to have signified his willingness to grant a ten-year exemption if a large plant is located in Alabama and the Legislature is expected to give approval to his plan, thereby paving the way for a new industry in the state.

"A bill already passed in the House would grant a five-year exemption, but another measure introduced in the Senate to allow ten years' operation without taxation was expected to take precedence and become a law. And in that event, it is reported, a plant representing an investment of $8,000,000 to $12,000,000 may be established in this state.

"Promoters of the scheme have facts to show that newsprint can be manufactured from pine pulp in the South cheaper than it can be made from spruce in New England and Canada and it is gratifying to know that Alabama seems virtually assured of an important share in the returns from the new industry. The Anniston *Star* has joined other newspapers of the state in endorsing the move to grant tax exemption to new mills located in Alabama and is pleased to note that this is about to be done through action of the Legislature with the approval of the Governor and at his suggestion."

Harvey Suit Is Settled

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, February 4, 1935—The suit of Tom Harvey, George E. Harvey and Harold A. Harvey, minority stockholders in the Gardner-Harvey Company, operating a paper mill, Middletown, against the Central Trust Company of Cincinnati as trustee, has been compromised and settled, according to an entry dismissing the case from the court of appeals.

In common pleas court the verdict was against the plaintiffs who refused an offer for their holdings in the Gardner-Harvey Company on reorganization, and claimed the holdings were worth more than $450,000. They alleged their interests as minority stockholders were not protected in the reorganization.

An appeal from the common pleas verdict was taken to the court of appeals, but no decision had been given there.

Weekly Production Ratio Report

Reports to the Paper Industry Authority show the following Over-All Production Ratios for the designated periods.

	Reporting Mills		Total Production Ratio
	Number	Capacity	
September, 1934	292–299	.....	59.4%
October, 1934	297–394	.....	64.7%
November, 1934	384–399	.....	61.7%
December, 1934 (a)	395–403	.....	62.1%
*Week ending January 5, 1935	404	166,093	60.4%
*Week ending January 12, 1935	398	162,224	64.8%
*Week ending January 19, 1935	381	160,468	66.8%
*Week ending January 26, 1935	286	112,232	66.8%

Detailed statistics showing the number of mills reporting by ratio groups are given below:

	Number of Mills Reporting			
	Week ending—			
	January 5,	January 12,	January 19,	January 26,
Ratio Limits	1935	1935	1935	1935
0% to 50%	209	161	144	102
51% to 100%	195	237	237	184

* Subject to revision.

According to reports from the National Paperboard Association, per cents of operation, based on "Inch-Hours" were as follows:

	September, 1934	62 per cent
	October, 1934	63 per cent
	November, 1934	56 per cent
(a)	December, 1934	53 per cent
	January 5, 1935	49 per cent
	January 12, 1935	64 per cent
	January 19, 1935	62 per cent
	January 26, 1935	65 per cent

(a) Capacity and percentage data excludes December 25, 1934.

Revised statistics covering delinquent mill returns will be shown in later reports.

Hearing on Cotton Tax Scheduled Feb. 14

Notice of a hearing to determine whether the processing tax upon cotton is causing or will cause to the processors thereof disadvantage in competition from reinforced gummed paper tape by reason of excessive shifts in consumption between such commodities or products thereof has been signed by Secretary of Agriculture Henry A. Wallace, the Agricultural Adjustment Adiministration announced today.

The hearing is to be held February 14, 1935, at 9:30 A. M., in the Hearing Room of the United States Tariff Commission, Old Land Office Building, 7th and F. Streets, N. W., Washington, D. C. J. L. Peirce and Percy C. Young of the Agricultural Adjustment Administration have been designated by the Secretary as joint presiding officers of the hearing.

The hearing is to be held pursuant to Section 15, subsection D, of the Agricultural Adjustment Act, as amended, and pursuant to the General Regulations Series 1, Revision 1, of the U. S. Department of Agriculture, Agricultural Adjustment Act. This section provides for the levying of compensating taxes upon commodities in competition with commodities upon which a processing tax has been levied.

Copies of the notice of the hearing may be obtained from the office of the Chief Hearing Clerk, Agricultural Adjustment Administration, Washington, D. C.

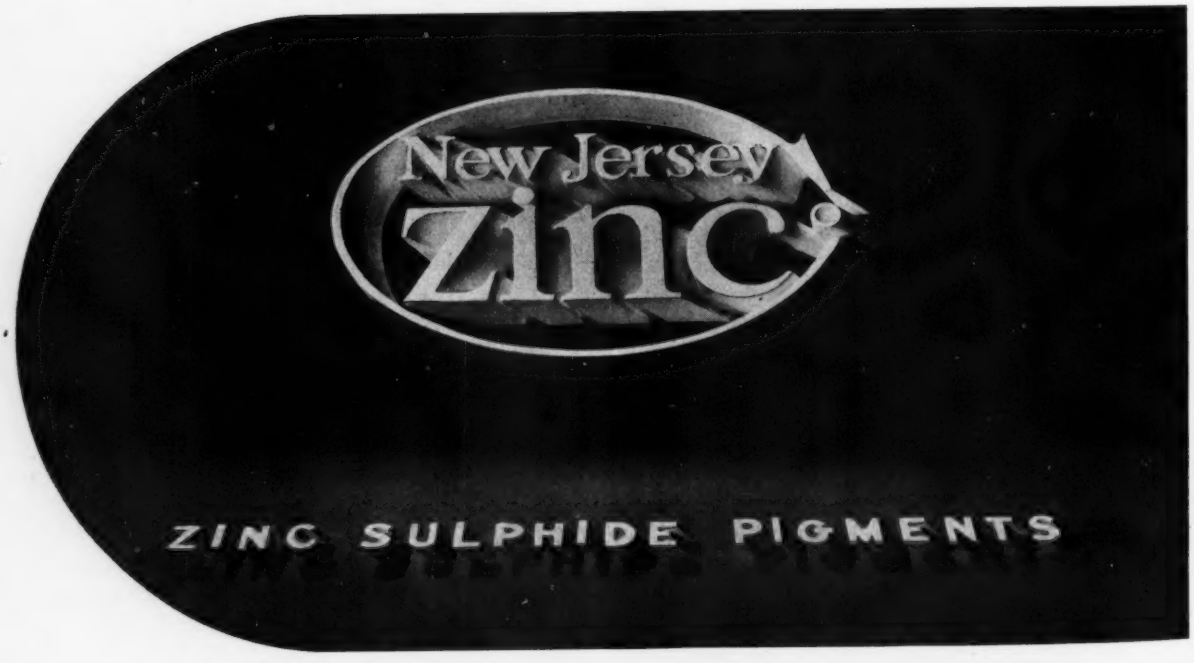
Work Progressing Rapidly on Napanoch Mill

NAPANOCH, N. Y., February 4, 1935—Work on the new mill at the plant of the Rondout Paper Mills, Inc., Napanoch, is progressing rapidly. A converting plant, which will produce an entirely new grade of tissue paper, has been added to the equipment, and several additional employees are expected to be added. It is expected the machinery will be in operation within thirty days.

STYLED *in the* 1935 MANNER

for OPACITY—WHITENESS—BRIGHTNESS

Improvement in these qualities in a broad group of papers is a most noticeable trend at this time. • For economy and convenience paper manufacturers are using the **Cryptone** and **Albalith** Zinc Sulphide Pigments to obtain these results. These pigments are available in a range of properties to suit a variety of manufacturing conditions. • And to cope with your particular problems the largest Research Laboratory in the world devoted to white pigments is available. • May we discuss with you any such improvements which you may be contemplating?



THE NEW JERSEY ZINC COMPANY

160 FRONT STREET, NEW YORK

Section of the

Technical Association of the Pulp and Paper Industry

Edited by Ronald G. Macdonald, Secretary

Management Under the NRA

An outstanding feature of the annual meeting of the Technical Association of the Pulp and Paper Industry at the Waldorf-Astoria Hotel, New York, February 18 will be an all day discussion of mill management in the paper and pulp industry, as brought about by "New Deal" conditions.

This meeting should have a particular appeal to the executives of the industry since it will deal particularly with employer-employee relations under the Codes of Fair Competition.

The papers to be presented in the morning program are as follows:

"Chart for Executive Control During Time of Shifting Economy," by W. N. Polakov. Dr. Polakov was recently an engineering adviser to the Tennessee Valley Authority and is now assisting the Director of the Federal Employment Relief Administration. He is the author of an excellent book recently published, entitled "The Power Age."

"Labor Cost of Production," by J. P. Hagenauer. This report is based on an intensive survey of wage rates in the paper industry during the past year. It has not been possible to prepare a report of this kind at any earlier time in the history of the industry.

"Apprenticeship in the Paper Industry and the NRA" by H. G. Noyes, Allen Abrams and L. J. McNamara. Under the Code the term "apprentice" has taken on a new and definite meaning and is directly related to employment.

The afternoon papers are as follows:

"The Paper Industry and its Effect on Labor Relations in the Paper Industry," by Adam Wilkinson of the American Writing Paper Company. Mr. Wilkinson's experience has been such that his hearers at this meeting will hear a most authoritative report of the present status of the labor situation.

"Paper and Pulp Mill Management in the Pacific Northwest Under NRA," by Robert B. Wolf of the Weyerhaeuser Timber Company, Longview, Washington. The writing of the "Northwest Agreement" is considered to be a classic of its kind and its wholesome effect on all concerned marks it as something that every paper mill executive should know something about.

Speaks on the Modern Group Drive

Alfred Kullman, research engineer, of the Mechanical Power Engineer Association addressed a group of 51 of Philadelphia's most prominent engineers in the Benjamin Franklin Hotel, Thursday, January 10. His subject was "The Modern Group Drive" and its application.

R. M. Pindell, president of Alexander Brothers, opened the meeting with a short welcoming address. Then followed luncheon and a film on "Modern Drives" accompanied by an electrically transmitted talk by Victor A. Hansom, R. E.

After the luncheon, Mr. Kullman again addressed the meeting in the Philadelphia Electric Company's exhibit room where he demonstrated a working model illustrating the comparison of efficiency between the modern group drive and direct drive.

Lake States TAPPI to Meet

The next meeting of the Lake States Section of the Technical Association of the Pulp and Paper Industry will be held at the Conway Hotel, Appleton, Wisconsin, on Tuesday evening, February 12, 1935 at 6:30 P.M.

The papers to be presented are as follows:

"The Effect of Water in Driers and Its Control," by H. G. Cram, consulting engineer, Boston, Massachusetts.

"The Black-Clawson Vat," by Allen Hyer of Hamilton, Ohio.

All who may be interested in attending will be welcome.

Syracuse TAPPI to Meet

The pulp and paper alumni of the New York State College of Forestry will have a dinner and informal get-together on Wednesday evening, February 20th at 6:00 P. M. at the Sacher Restaurant, 301 Madison Avenue (between 41st and 42nd Streets), New York. Arrangements are in charge of W. R. Willets, Titanium Pigment Company, 105 York Street, Brooklyn, N. Y.

Pendleton Round-up Dinner Dance

Members and friends of the Technical Association who attended the fall meeting at Portland, Ore., will hold a reunion on Tuesday, February 19 at the Swedish Engineers Club, New York. This will be in the form of a dinner-dance which will be strictly informal, in fact, ten gallon hats and boots and spurs will be in order.

Maine TAPPI to Meet

Members of the alumni of the University of Maine will attend the TAPPI annual meeting and hold a reunion and dinner at the Shelton Hotel, New York, on Wednesday evening, February 20. Arrangements are being made by A. W. Nickerson, 501 Fifth Avenue, New York.

Some Factors Influencing the Life of Fourdrinier Wires*

N. B. Pilling[1], F. L. LaQue[2] and F. G. Wheeler[3]

PART I—THEORETICAL CONSIDERATIONS[4]

Abstract

A study of the causes of limited wire life of fourdrinier wire. An analysis of the various stresses affecting wire life is given. Photomicrographs show that grain size provides a means of subjecting wires to give maximum life and each machine may have an optimum grain size.

It is hardly necessary to comment on the importance to the paper industry of the problem presented by the necessity of frequent replacement of fourdrinier wires. The factors that determine the behavior and life of fourdrinier wires are so many and so complex that it is obvously impossible to discuss them all or to estimate their relative importance. However, some of these factors such as mechanical stresses and the effect of wear on stress seem capable of analysis. Since it is possible that an analysis may point the way to improvements in fourdrinier wire life, it will be attempted for what it may be worth.

A similar analysis of the problem has been carried out by Oskar Sturmer *(1)* to whom the authors are indebted for some illustrative data to be quoted. A complete reading of Sturmer's treatise is recommended. A less detailed article on the same subject by Raymond Fournier *(2)* was published recently.

Stress Analysis

For purposes of stress analysis a fourdrinier wire can be considered as an endless belt driven by the couch roll and driving the other rolls on the paper machine. The warp wires, since they are parallel to the direction of movement, have to carry all the load, the shute wires serve principally to provide rigidity and for all practical purposes are not affected by the operating factors producing stress in the warp wires. In operation the warp wires are stressed as follows:

1. A tensile stress due to the driving tension.
2. An additional tensile stress due to the initial tension set up by the stretch roll. (This should not be more than three pounds per inch of face of the wire cloth) *(3)*.
3. Bending stresses due to contact through an arc with the rolls over which the wire passes, and at the edges of suction boxes.
4. Tensile stresses arising from accelerations in driving the screen. These are important only when the machine is started up and can hardly be determined by calculation. As the wire wears, these stresses are subject to change due to alterations in the sectional area of wires stressed in direct tension and to localized changes in form of wires in flexure, such as sharper bends at weak points.

Let us consider these stresses separately.

1. Driving Tension

Considering the fourdrinier wire as a belt, the driving tension can be calculated directly from the linear speed of the wire and the power required to maintain it at that speed. An equation connecting these variables is

$$L = 33000 \frac{H}{V} \qquad (1)$$

where L = total force in pounds
H = horsepower
V = velocity of the wire in feet per minute

For example, in an actual case it took 100 horsepower to drive a wire 164 inches wide at a speed of 970 feet per minute. The wire was 60 mesh with a warp diameter of 0.0082 inches.

From the equation (1)

$$L = \frac{33000 \times 100}{970} = 3400 \text{ pounds}$$

Further calculations show that the unit stress in the warp wire in this case is 6630 pounds per square inch. This driving stress is, of course, reached only at the point of maximum load, that is, immediately in front of the driving couch roll. It diminishes as each power absorbing point is passed until it reaches only the value of the initial tension where the wire leaves the couch roll.

Since the warp wire is, of course, not straight, but crimped, and constrained to its shape by the shute wires, the stress in the warp is variable along its length. It is least where the axis of the warp is parallel to the plane of the screen (at the troughs and crests), and greatest where the obliquity of this axis is greatest. For example, an obliquity of 42 degrees has been calculated to be equivalent to an increase of stress of 35 per cent. However, the effect of wear in service is such as to increase the unit stress at the troughs and crests without changing the stress in the oblique portions of the wire. Consequently, after a short period of use the point of maximum stress becomes the trough of the warp wire and the effect of obliquity need no longer be considered.

2. Initial Tension

The stresses from this source have already been discussed. In the example previously cited this initial tension should amount to not more than 786 pounds per square inch with a proper set up. This stress is relatively so small that it can be dismissed as unimportant.

3. Bending Stresses

In operation the wire must pass around several cylindrical rolls to the shapes of which it must conform through variable degrees of arc, depending on the set up. It should be noted that the length of the arc through which the wire conforms to a roll has no bearing on the magnitude of the bending stress developed, although it does determine the length of time the stress is maintained.

In addition, the warp wires may be bent as they pass over the edges of suction boxes or over the openings in suction boxes.

For a straight wire of circular cross section bent to conform to a cylinder whose size is such that the stresses developed in the wire are below the elastic limit of the material, the bending stress can be calculated from the following equation:

$$S = E \frac{C}{R} \qquad (2)$$

when S = fiber stress in pounds per square inch
E = modulus of elasticity in tension of the wire material, in pounds per square inch
C = maximum fiber distance in inches from the neutral axis of the wire. Actually this equals the radius of the wire.
R = radius of roll in inches

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* To be presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, N. Y., Feb. 18 to 21, 1935.

[1] Manager Research Laboratory, International Nickel Company, Inc., Bayonne, New Jersey.

[2] Development and Research Department, International Nickel Company, Inc., 67 Wall Street, New York, N. Y.

[3] Chemical Engineer, Kimberly Clark Corporation, Neenah, Wisconsin.

[4] Part I has been prepared by Messrs. Pilling and LaQue.

This equation (2) for bending stresses has been based on the simple case of a circular wire wrapped around a roll. For a screen fabricated from circular wires, the following differences in increasing order of importance should be considered:

1. A simple wire wrapped around a roll touches the roll at all points along the arc of contact, whereas the warp wires of the screen touch only at discrete points.

2. The wave-like shape of the crimped warp wires brings about a concentration of stress in the curved portions leading to the involved relations of curved beams.

3. Wear of the warp knuckles reduces the section area by the development of what would appear as a series of curved notches if the wire were straightened out. These notches bring about a further concentration of stress which may be of controlling importance.

Let us consider these three points separately.

It can be shown that, in spite of the fact that the warp wire touches the roll only at regularly recurring points, the wire between these points conforms to the curvature of the cylinder. Consequently, the fact that only the warp knuckles touch the rolls does not constitute an important departure from the simple case.

The wave-like shape of the warp wires induces two factors of opposing tendencies. The curvature of the warp wire to approximately the radius of the shute wire gives a curved beam in which the ratio of diameter of wire to the radius of curvature of its inner surface is approximately 2 to 1. Under such conditions the stress in the curved section may amount to about 160 per cent of that calculated by the straight beam formula *(4)*.

An opposing factor tends to counteract this increase in stress by reason of the fact that the length along the curve of the warp wire is considerably greater than the distance between knuckles. For example, in a particular case this ratio amounted to 1.18 to 1. Since, for two beams exactly similar except for length, the fibre stress for a constant deflection varies inversely as the square of the length, the extra length of the curved warp wire tends to decrease the stress in the example cited by about 39 per cent, leaving a net increase over the calculated stress of about 21 per cent due to the crimping. However, the exact radius of the inside curve of the warp wire is uncertain and, due to its springiness, probably greater than the radius of the shute wire. It is, therefore, reasonable to assume that the two opposing factors practically cancel each other, leaving no important departure from the simple case due to crimping of the warp wire.

The effect of knuckle wear on bending stresses is of considerably greater importance.

In use, a screen wears mostly on the inside warp knuckles. The effect of this wear is to give the warp wire a bluntly notched section. The behavior of such a notched wire when wrapped around a roll may be compared to a chain of flat, hinged links which bend only at the hinges. The notch, of course, constitutes a very imperfect hinge, but the effect of its presence is to increase the radius of curvature of the unnotched portion of the wire and to decrease that of the notch so that the bending stresses developed no longer correspond to a curvature equal to that of the roll. This new radius of curvature at the notch can be calculated from the following equation which applies to rectangular notches of uniform depth:

$$R_3 = \frac{\frac{I_2}{I_1} l_1 + l_2}{l_1 + l_2} \times R_1 \qquad (3)$$

when R_3 = radius of curvature at notch
R_1 = radius of roll
I_3 = moment of inertia of notched section
II_2 = moment of inertia of original section
l_1 = length of notch
l_2 = length of un-notched section

Having determined the radius of curvature at the notch by equation (3), this value can be used in equation (2) in calculating the bending stresses at the notch. The value of the term C in equation (2) must also be changed to conform with the changed shape of the section on account of wear and the new location of the neutral axis with respect to the outermost fibre.

It will be seen from the discussion up to this point that the maximum stress in a wire will be at the warp knuckles and may be made up of a driving stress and a bending stress that can be calculated from available data by means of equations 1, 2 and 3. This total stress can be expressed by the following equation:

$$S = \frac{L}{\pi n r^2} + \frac{rE}{R} \qquad (4)$$

where S = total fiber stress in pounds per square inch
L = total driving load in pounds (calculated using equation 1)
n = number of warp wires carrying the load
r = radius of warp wire in inches
E = modulus of elasticity of the warp material in pounds per square inch
R = radius of smallest roll in inches

It will be seen that as r (the radius of the warp wire) is increased, one stress is decreased and the other is increased. There must, then, be an optimum relationship amongst the variables with respect to r where the total stress S will be a minimum. By differential calculus the optimum value of r in terms of the other variables can be determined and expressed by the equation:

$$r = \sqrt[3]{\frac{2RL}{\pi nE}} \qquad (5)$$

This equation may also be re-written in terms of the radius of the roll as follows:

$$R = \frac{\pi E n r^3}{2L} \qquad (6)$$

when R = radius of smallest roll in inches
E = modulus of elasticity of the warp material
n = number of warp wires carrying load
r = radius of warp wires in inches
L = total driving load in pounds

Since this relationship holds only for an unworn wire, it has only a limited usefulness. Nevertheless, it provides a rough means of predicting whether bending stresses or driving stresses are going to be of controlling importance in a given case.

The stresses in warp wires are not steady in value, nor even constant in their direction. As has been pointed out previously, the driving tension may vary from a maximum at one side of the driving couch roll to a minimum at the other, although the direction of the stress is always the same. The bending stresses resulting from conformity with the shapes of the various rolls over which the warp wires pass not only vary from a minimum to a maximum, but also vary from a maximum in one direction to a maximum in the opposite direction, due to the fact that some of the rolls are on one side of the wire and others on the opposite side. Thus, the fibres in a warp wire may be alternately in tension and compression. Such cycles of stress give rise to the well known phenomenon of fatigue, which under certain conditions may be of controlling importance in determining the life of a fourdrinier wire. In this connection it should be noted that the frequency of the alternating stress may be as high as several hundred thousand cycles per day.

Corrosion of fourdrinier wires may be of some impor-

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tance in certain cases, but from the information available, it seems that mechanical factors are more important. Wires usually wear out before they have had a chance to corrode very much. However, where fatigue stresses are high, the effect of corrosion on fatigue may be appreciable and should be considered. The effect of corrosion in lowering the fatigue limits of materials has been studied by several investigators. The reader is referred to the work of McAdam *(5) (6) (7)* for a detailed discussion of this subject.

Having discussed the several factors influencing the behavior of fourdrinier wires, let us now consider how some of these factors may be controlled so as to improve the life of fourdrinier wires.

Wear

Whatever the mechanism of failure of fourdrinier wires may be, one thing is certain and that is that wear or abrasion of the warp knuckles is the prime cause of failure. If the rate of wear could be reduced, the life of a fourdrinier wire would be increased to a corresponding extent. The prinicpal points of wear seem to be the following:

1. Suction Boxes

As the warp knuckles slide over the suction box covers they are subject to wear as a result of friction with the cover material. Also, the paper stock may contain gritty material, such as sand or filler, which tends to increase wear of the wire at points of friction. For this reason every effort should be made to eliminate sand as much as possible by careful cleaning of the pulp through the use of sand traps or, better still, by the use of centrifugal separators.

The choice of material for suction box covers may also be important, although there does not seem to be any unanimity of opinion as to what material is best, recommendations running all the way from several metals through various types of wood to such a relatively soft and resilient material as leather.

The question of the proper amount of suction at the suction boxes is also important, since a greater amount of suction than that yielding adequate efficiency in dewatering the stock can only be detrimental by increasing wear of the wire as it passes over the suction box cover.

While the suction box provides the point of greatest relative motion between the fourdrinier wire and materials which may abrade it, other points of possible wear are table rolls, guide rolls, stretcher rolls and even the driving couch roll when, through slip or friction, these roll surfaces travel at a speed different from that of the fourdrinier wire. To keep this relative motion to a minimum, the rolls driven by the fourdrinier wire should be made as easy to drive as possible by careful lubrication of all bearings or the use of ball or roller bearings, and by keeping the rolls as light as is compatible with the proper degree of stiffness required for smooth running.

The extent and distribution of wear on a fourdrinier wire was illustrated by Sturmer in his article previously referred to. He examined a wire that had been removed from service after only 8 days on account of failure of a seam. Measurements of typical warp wires provided the following data:

Wire	Original cross sectional area in sq. mm.	Final cross sectional area in sq. mm. Paper side (top)	Final cross sectional area in sq. mm. Running side (bottom)	Loss in cross sectional area in per cent Paper side (top)	Loss in cross sectional area in per cent Running side (bottom)
Seam	0.0302	0.0281	0.0268	4.2	11.1
Warp	0.0437	0.0316	0.0296	27.8	32.4
Shute	0.0441	.....	.....	...	...

It will be seen that, as would be expected, wear was greater on the warp knuckles in contact with the suction boxes and most of the roll surfaces, although wear on the paper side was also appreciable.

The effect of wear in increasing the unit stress in warp wires can be estimated using equations 1, 2 and 3 previously described. For example, let us consider the case of a 60 mesh, 0.0082-inch diameter warp, fourdrinier wire 164 inches wide running at a speed of 970 feet per minute and requiring 100 horsepower to drive it. In one case let us assume the warp material to have a modulus of elasticity of 15,000,000 pounds per square inch and in another to have a modulus of elasticity of 25,000,000 pounds per square inch, in order to note the effect of change in modulus on bending stresses and total stresses. Let us also assume that the smallest roll over which the wire passes has a diameter of 11½ inches and that this roll is located near the point of maximum driving tension. The results of such calculations are plotted in Fig. 1.

It will be noted that knuckle wear amounting to half the wire diameter practically doubles both the bending stresses and the driving tension. It should also be noted that with the material having the higher modulus of elasticity the bending stresses alone are greater than the total stress on the material of lower modulus. This will be discussed in greater detail in connection with the examination of the characteristics of the materials used for warp wires.

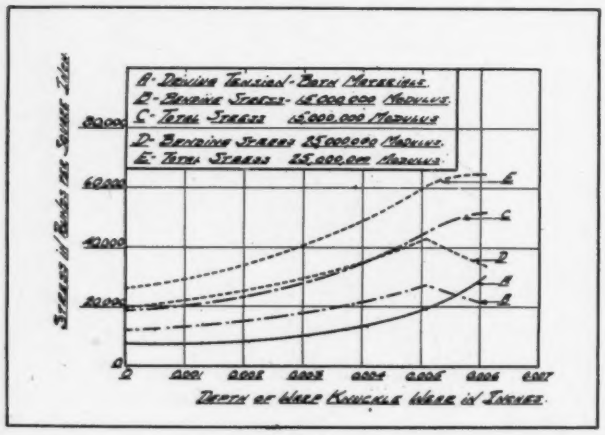

Fig. 1
Effect of knuckle wear on stresses in Fourdrinier warp wires having different moduli of elasticity.

Weave of the Wire Cloth

The characteristics of a fourdrinier wire cloth are determined by several factors other than the stresses which it may be called upon to withstand. Nevertheless, it may be interesting to examine the question of wire design from the standpoint of the changes which might be expected to have the most beneficial effect on the life of the wire in service.

The most beneficial change in weave would be to flatten the warp crimp so as ultimately to increase the area of the wearing surface and broaden the notch formed by wear. This might be done in several ways, such as:

1. Reducing the stiffness of the shute wire, either by making it smaller or by using a softer material.
2. Increasing the stiffness of the warp wire.
3. Decreasing the shute count.
4. Using a twill weave, zig-zag twill, multiple warp, or multiple strand warp weave.

There are both practical and theoretical disadvantages in connection with all these possible methods. For example, the requirements of cloth stiffness limit how far we

can go in reducing the stiffness of the shute wires. However, it is interesting to consider the possibility of using materials having a higher modulus of elasticity which can be made smaller in diameter than those materials in common use, without sacrifice of stiffness. Such a material is nickel. In any event, it would seem that best results may be expected where as soft a material as is compatible with the required strength and stiffness is used for the shute wires. In the absence of bad effects in other directions, it is possible that the ideal form of wire cloth would have a shute knuckle equal in salience to the warp knuckle so as to produce a flatter warp crimp and distribute the wear over both shute and warp wires.

The stiffness of the warp wires is limited by the requirements for weaving and by the necessity of retaining sufficient ductility to provide for over-stressing in service. This point will be discussed in greater detail later.

Decreasing the shute count rapidly diminishes the rigidity of the screen and increases the drainage area, both of which are serious limitations on the usefulness of this suggestion. If the shute diameter were increased with fewer shutes, the beneficial effect of the decrease in the number of shutes would be offset, at least in part, by the increased stiffness of the shute, which as discussed previously is undesirable.

The use of a twill weave where the warp wire straddles two shute wires would certainly decrease the warp crimp most effectively. However, twill weaves are not symmetrical and tend to deform diagonally. Zig-zag twills which overcome this objection may not be practical for other reasons.

Multiple strand warps or multiple warp weaves would provide the desired flexibility without excessive bending stresses. However, the small diameter of the warp strand wires and the wires in the multiple warp works in the wrong direction, since, for a given amount of wear, the depth of the warp notch becomes greater the smaller the diameter of the wire with a corresponding increase in the concentration of bending stresses at the notch. This effect would, of course, be more serious with the multiple warp weave than with the multiple strand warp where the bending stresses are less to begin with.

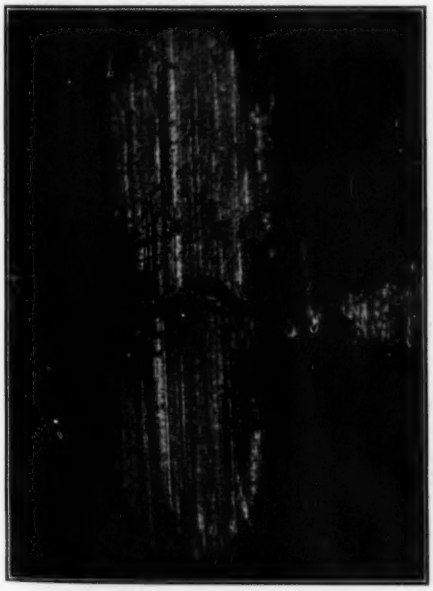

FIG. 2
Ductile break of Fourdrinier warp wire.

FIG. 3
Brittle fracture of Fourdrinier warp wire.

The selection of the proper diameter of warp wires might be based on equation 5 previously discussed, although in all probability the other requirements of Fourdrinier wires would seriously limit changes in this direction, especially in the case of materials having a relatively high modulus of elasticity which would require such small diameter wires as to be impractical.

Hardness of the Warp Wires

It is obvious that the harder we make the warp wires the greater will be their resistance to wear and, therefore, the longer they will last. The first limitation in this direction is imposed by the wire weaver who requires a certain amount of ductility in the wire as he gets it for weaving. A second limitation is imposed by the requirements of service which can be summed up by saying that the wire must be sufficiently ductile when put into use to provide for overstressing in service. The difference in behavior between hard and soft wires might be explained as follows:

When a warp wire breaks for any reason the immediately adjacent wires have to absorb the extra load transferred to them. This extra load is not spread to more than a few wires on each side because of friction between the wires. If the wires are ductile and some wear has occurred so as to raise the total stress over the elastic limit of the wires—the elastic limit must be exceeded since purely elastic stretch is not enough—the extra load will be relieved by stretching of the wires. This will continue until ultimate failure occurs when the sectional area has been reduced enough to cause failure under the load applied. This stretching may occur in steps as the elastic limit of the wires is progressively increased by cold work resulting from the stresses of service. If, however, the warp wires are not able to stretch on account of having too high an elastic limit, the additional stress imposed on adjacent wires by failure of one wire will not bring the total stress above the elastic limit of the material. Consequently, this extra stress cannot be relieved by stretching; it merely increases the total stress in the wire and tends to induce failure by fatigue. This happens most often with hard wires when failures as a result of fatigue be-

gin to develop after a relatively small amount of wear and where the relatively large sectional area that remains is more than enough to take care of added stresses without stretching. In such cases a break in an individual wire tends to be progressive across the cloth in the form of a tear. The difference between the ductile tensile break of a relatively soft wire that has been worn considerably and the brittle fatigue fracture of a relatively hard wire showing relatively little wear before failure is shown by Figs. 2 and 3. Fig. 2 is, of course, representative of the ductile break and Fig. 3 of the brittle fracture. Figs. 4 and 5 showing warp knuckles adjacent to the one that failed (Fig. 3) illustrate the development of a brittle fracture through fatigue stresses. The relatively small amount of wear that has occurred (as measured by the length of the worn spots on the warp knuckles) should be noted.

It would appear, then, that there should be an optimum degree of hardness for warp wires which will provide maximum resistance to wear without sacrifice of the ductility required to provide for overstressing. Wires that are too soft will wear out in a short time. Wires that are too hard will fail from fatigue before much actual wear has occurred. Bending stresses have been shown to be most important from a standpoint of fatigue, and since bending stresses are determined by the characteristics of the paper machine (such as diameter of rolls, etc.), it should follow that each machine should have an optimum hardness of wire that will give best results and that this optimum hardness may vary as the factors governing the rate of wear vary.

That this is actually the case has been discovered by one of the authors, as will be described in detail in the second section of this paper.

Wire Materials

The important properties of materials used for warp wires are their ductility, elastic limit, hardness, resistance to fatigue and rigidity (as determined by the modulus of elasticity). The relationship between ductility, elastic limit and hardness has already been discussed in some detail.

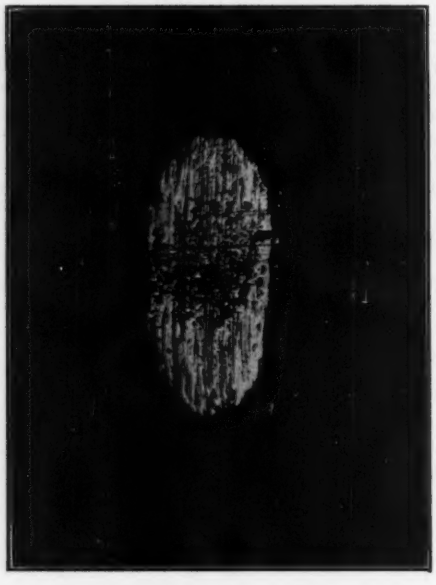

FIG. 4
Early stage in development of brittle fracture of Fourdrinier warp wire.

FIG. 5
Intermediate state in development of brittle fracture of Fourdrinier warp wire.

Resistance to fatigue is important, since it determines the maximum useful hardness and consequent resistance to wear in wires that are used under conditions leading to failure through fatigue. The fatigue limit or endurance limit of a material, or more properly its corrosion fatigue limit in a paper stock solution is an important characteristic.

In general, the fatigue limit increases with tensile strength and hardness so that a sacrifice of ductility is at least partially compensated by a higher resistance to the fatigue stresses that may result from the lack of provision for overstressing in service.

Since it has been shown (*8*) (*9*) (*10*) that internal stresses tend to lower the fatigue limit, a stress relieving anneal of fourdrinier wire cloths after weaving might be useful in cases where failure in service results from fatigue rather than from ductile tensile breaks after considerable wear.

The rigidity of warp materials as measured by the moduli of elasticity is of considerable importance, because of its controlling effect on bending stresses. This is illustrated by Fig. 1 from which it will be noted that with the material having the higher modulus the bending stress alone is greater than the total stress of the lower modulus material. As a result, it is quite possible that unless there is a corresponding increase in resistance to fatigue, a material having a high modulus may fail in fatigue in about the same length of time that a softer material with a lower modulus will wear out. It might also be expected that the higher the modulus of elasticity of a material, the lower will be the hardness that will give the maximum life and the greater should be the ductility to provide for overstressing. The controlling factors are so complicated and interconnected that only an actual trial in service will establish definitely the suitability of a material for warp wires. However, intelligently conducted tests by a competent laboratory can be expected to provide information upon which a practical service test can be based.

The Paper Machine

In order to improve the life of fourdrinier materials

having a high modulus, or of other warp materials that fail through fatigue, the diameter of the various rolls on a paper machine (except table rolls which do not stress the wire) should be made as large as possible. This is indicated by equation 6 which can be used as a rough guide in predicting whether a given material in a given set up will be liable to fail by fatigue or by a ductile tensile break. If the diameter of the smallest roll is below the optimum, fatigue failures will be favored, whereas if it is above the optimum a ductile tensile break may be expected.

Similarly, the relationship to the optimum roll diameter will provide a rough guide to the hardness of warp wire that can be expected to show the best life, assuming that the optimum hardness for some other machine has been established by a trial. Whether a softer or harder wire should be tried on a new machine might be estimated with a somewhat better chance of being right than a pure guess.

The location of guide rolls, stretcher rolls, carry rolls, etc., should be such as to avoid, if possible, the combination of high bending stresses and maximum driving tension at or near the same point. The location of a small diameter guide roll between the suction boxes and the couch roll is especially bad in this respect. Any other location of the guide roll that would be feasible would be expected to improve the life of a fourdrinier wire, especially if the wire is subject to failure through fatigue.

The edges of suction box covers should be given as generous a radius as possible so as to reduce bending stresses in the warp wires as much as possible. The suction on the suction boxes should be kept as low as will give adequate dewatering of the stock so as to avoid excessive bending of the warp wires as they pass over the openings in the suction boxes.

PART II—PRACTICAL APPLICATION OF THEORY[1]

Everyone who has had any association with a fourdrinier paper machine, soon realizes that the life of the "wire" is one of the problems of the paper maker. It seems to vary through wide limits for no reason at all. The paper maker will use a certain manufacturer's cloth on one of his machines as a trial. If it has a good life, he will continue to use wires from that manufacturer. If not, he changes to another's wire, always seeking some way of getting the best life that he can from what is available. It is true that cloth failures may be due to some fault in the machine, but from his experience, the paper maker can usually judge whether the trouble is in the machine or in the wire. Many times he is puzzled, however, to know why a wire of a certain make works better on one of his machines, but does not give good results on some other machine.

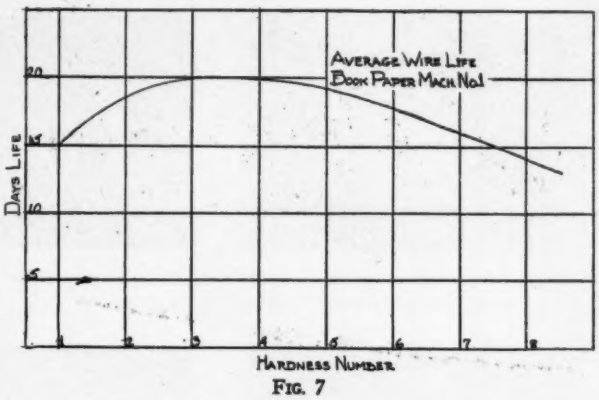

Fig. 7

It was with this in mind, that a review of many wire records was examined. The manufacturers of wires know how to make a good wire. They all have satisfactory installations, and customers who like their wires. They also have customers who do not seem to have unqualified success with their wires, and while some mills will try a wire or two, once in awhile, they do not like the wires produced by certain weavers. In common with the results of many mills, the wire records we examined gave a picture of very erratic results. Some machines seemed to be "hard" on wires, although they were making the same paper that other machines, which used a wire much longer, were making.

Upon examining different samples of wires, some were badly worn through the knuckles before they failed, while other samples broke before the knuckles had been worn nearly as much. It seemed to be some property of the wire itself which caused this difference. The first thought was to test the wire for strength, elongation and yield point, and a machine which would give accurate results was built to test individual wires. These wires were furnished us by the weavers, as being the same quality warp wire as was used in certain cloths, but our studies did not lead us to any definite conclusions. We did not find that the tensile strength, or the elongation, or the yield point would be indicative of the life of the wire on the paper machine.

We then tried to get some method of testing a wire before and after weaving, before and after using, which could be used in making up a wire according to specification so that it would give us the life on the paper machine which we had expected. The worn knuckle seemed

[1] Part II has been prepared by F. G. Wheeler.

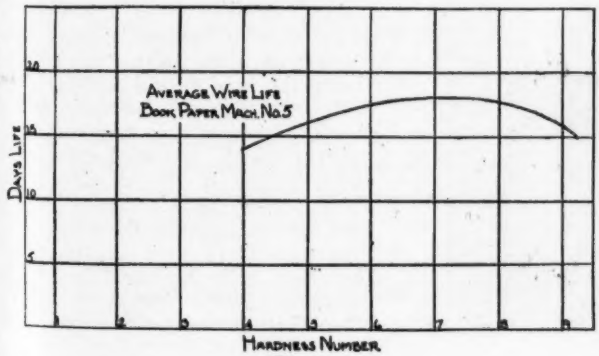

Fig. 6

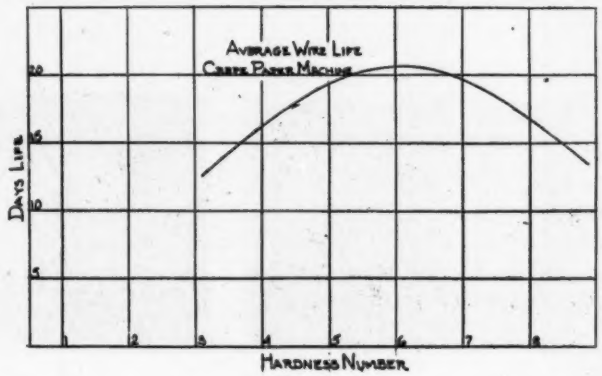

Fig. 8

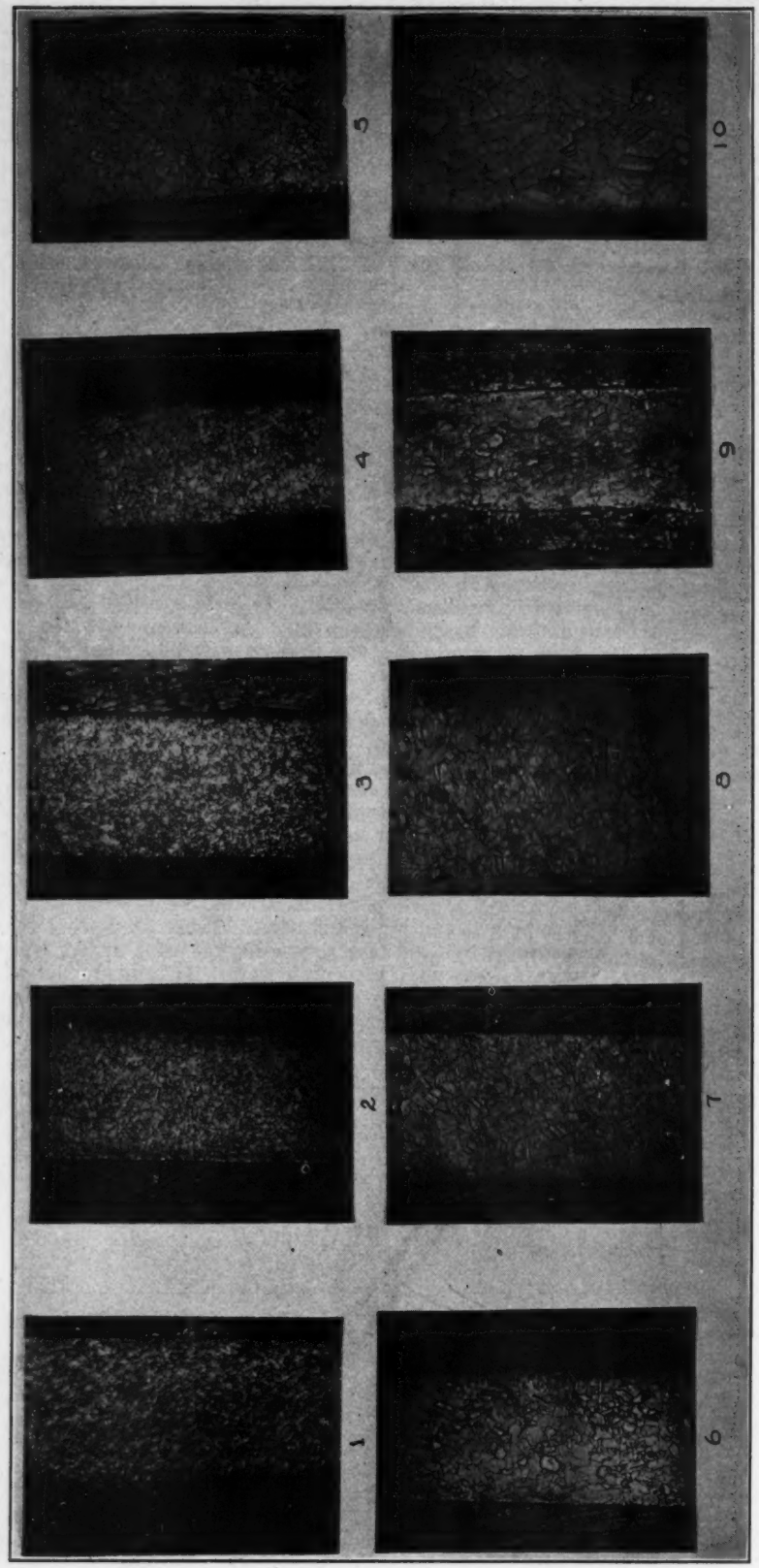

FIG. 9
Degree of wire hardness. (250X. Reduced one-half).

to be a good starting point. We thought of using the knuckle itself as the polished surface. This we etched to bring out the crystal form. Under the microscope, we found a wide variation between different wires, from different warps. We knew that the crystal size was a function of the hardness of the wire, and there seemed to be no other way of determining the hardness of the wire except to take a microphotograph, and compare the crystal sizes.

We accordingly photographed many wires, and recorded the machine upon which it had been used, the speed of the machine and other data that we thought might be useful. At this time, other questions regarding the crystal size of the wire presented themselves. The first of these concerned the effect of forming the knuckle in the loom. Was the crystal size changed by the action of the loom in bending the wire? We found the size of the crystal in the bend the same as in the metal between two bends. Another question was whether the use of the wire on the paper machine changed the crystal size. By testing a sample of wire from the cloth before use and after use, we did not discover any variation in size. Did the cloth show much variation between different individual wires across a warp? Only in a very few cases did we find any such variation.

Uniform Crystal Size

As our collection of photographs accumulated, we began to realize that the wires which gave the best satisfaction on a given machine, seemed to have one uniform crystal size, not the same for different machines, but much the same for any one machine. The hardness, or the crystal size of the metal in a wire, should be expressed in some way so that it could be tabulated, and perhaps plotted. A simple way was to select a set of ten photographs (Fig. 9), each of a wire having a hardness different from the others, and arrange it into an arbitrary scale of hardness. These were numbered from one to ten, the one being the hardest and the tenth the softest of the set. Each photograph in the collection was then compared with this scale, and the hardness recorded upon it. By tabulating the hardness of the wires used on any one machine, against the life, it was apparent that wires of a certain hardness gave the best life on that machine. Wires harder or softer than that hardness did not have as

long a life as those of the given hardness. This differed for different machines. It also differed to a less degree with the different manufacturers of wires. Whether this latter was due to the methods of drawing or slight variations in composition, or some other cause, was not investigated. The photographs were sorted according to wire manufacturers, and the machine upon which it was used. By plotting the hardness—life diagram in this way, a curve was formed, showing the proper hardness for that given machine. However, the hardness which gave the best life on one machine might not be at all the best one for another machine. We did find that several of the machines were very similar, but other machines very different.

The work presented two problems. First, why did a certain hardness give the best life on a paper machine? and second, why was there such a variation between two machines, making the same kind of paper? By examining the samples of wire which were too soft, we found that the knuckles wore very thin, and broke because the cross section had become too weak. Those which were too hard broke in the knuckles before it was worn down to a thin cross section. In the making of paper where much filler is used, the soft wires wear through too quickly on the suction boxes, and on the other hand the hard wires break because they are unable to withstand the bending action of the rolls. This leads to the answer of the variation between two machines. The different machines have a different arrangement of suction boxes, and different size rolls. If two machines are built and work alike, the hardness of the wire which will give the best results will be similar. If a machine is quite different from the others, that wire most suitable for that machine may be quite different from the one for the other machine.

A Specification Wire

Would this theory work out in practice? Could a wire of a definite specification be made, and would it perform as expected? One of the manufacturers consented to try to make up a warp according to specification. The microscope was used to check the hardness of the wires, and a warp was selected in this way which had the proper hardness for the machine upon which it would be used. The cloth so made had a better life than had ever been obtained before on that machine. However, it was not a practical way for the weaver to select his wires for a warp, and while the theory had been proven, it could not be used as a manufacturing method.

Later, another method of tempering wire was introduced, by another wire weaver, and the same problem was put up to him; he consented to try to make some wires according to specification. These gave us uniformly long lives upon the machines for which they were designed. It seems, therefore, to be clear that the life of a wire is a function of its hardness, and that the proper hardness depends upon the design of the paper machine itself.

To reduce this to practice, depends upon two entirely different questions. The one is the ability of the wire weaver to accurately control the temper of his wire to meet the demand of the machine upon which it is to be used. This is not a simple problem, for he must also have the wire of a temper which will work best on his looms. The other is for the paper machine designer to consider the strains introduced in the wires by the arrangement and size of the rolls, while he is also thinking of the many other problems of paper machine design. Like many engineering problems, the overall considerations may not include wire life as a material factor.

There was no work done on phosphor bronze wires nor with newsprint machines. The same study could be applied to those, however, and it would seem that similar conclusions should be reached.

Literature Cited

(1) Papier-Fabr. 31, Nos. 22 and 23:317-321, 331-336 (May 28 and June 4, 1933).
(2) La Papeterie 56, No. 12:637-8 and 641 (June 25, 1934).
(3) Commercial Standard C. S. 36-31, Fourdrinier Wire Cloth. U. S. Department of Commerce, Bureau of Standards, page 6 (Jan. 4, 1932).
(4) Boyd, James E., 2nd Ed.: 331 and 333. McGraw-Hill Pub. Company, New York, (1917).
(5) McAdam, D. J., Jr., "Stress Strain Cycle Relationship and Corrosion Fatigue of Metals." Proc. Am. Soc. Testing Materials, 26, Part II: 224 (1926).
(6) McAdam, D. J., Jr., "Corrosion Fatigue of Ferrous Metals," loc. cit. 27, Part II:102 (1927).
(7) McAdam, D. J., Jr., "Some Factors Involved in Corrosion and Corrosion Fatigue of Metals," loc. cit. 28, Part II:117 (1928).
(8) Gough, H. J., "The Fatigue of Metals," Scott Greenwood & Company, London (1924).
(9) Moore, H. F., and Kommers, J. B., "Fatigue of Metals," McGraw-Hill Book Company, New York (1927).
(10) Buckholtz, H., and Buhler, H., Stahl und Eisen: 53:1330-1332 (1933).

Evaluation of the Printing Quality of Paper*

By B. L. Wehmhoff[1]

Abstract

The sub-committee has presented the results of the work done during the past two years, covering methods of evaluating the printing quality of paper. All of these tests are not in general use in either the paper or printing industries, but they have had sufficient trail to prove their practical value. Evidence to support this is presented in the form of laboratory test results and printed specimens.

The Ink Resistance Sub-Committee (and its successor, the Printing Properties Sub-Committee) has been in existence for five or six years, most of the time in a state of suspended animation. This was not due to lack of interest by the members and the various chairmen, but to the lack of proper facilities for doing the required work.

It is relatively simple to devise new tests for any material and to prove that they are reproducible under controlled conditions, but the relationship of such tests to the finished product must be definitely established before the tests can be said to have any practical value.

The essential factor in this work was the opportunity to compare production printing done under controlled conditions with laboratory tests on the papers being studied. This in turn required a conditioned paper testing room in a printing plant doing a wide variety of printing, particularly multicolor work. Practically every committee member has had laboratory facilities available, but the required combination of laboratory and printing plant was not available until recently. Paper mill laboratories lack contact with printing, and the character of the work done at the only printing plant previously having a laboratory, being

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Report of the Printing Properties Sub-Committee of the TAPPI Paper Testing Committee.

[1] Member TAPPI, Chemical Engineer, W. F. Hall Printing Company, Chicago, Ill.

almost exclusively book and pamphlet work in black only, did not afford the variety necessary for a study of printing papers in general. The desired combination of printing plant and laboratory has been available for somewhat more than a year, which has made it possible for the committee to present this report.

The first committee report, made by E. O. Reed *(1)*, described the work done during the previous year on methods of measuring the rate of absorption of printing inks by paper. The tests described are simple and can be easily duplicated under controlled atmospheric conditions. Subsequent work on newsprint showed the value of this test on such paper (*2*). A progress report in 1932 gave some evidence of the value of the printing smoothness test (*3*), also on newsprint.

A survey showed that none of the standard TAPPI paper tests, excepting possibly thickness, would yield information useful in evaluating the printing qualities of paper. Previous work by the sub-committee resulted in oil penetration tests (*1*) and one of these, together with a modified method for use on heavy papers, has been found of marked value. These tests, together with printing smoothness and density, comprise the tests found to be of actual value. Basis weight and thickness tests are also made, as variations in these two factors influence variations in printing quality.

Test Results

A description of each of the tests or reference to where the methods have been printed is submitted as part of this report. It is realized that these methods are not necessarily those which will ultimately be found best adapted to measuring the desired characteristics of paper. However, they are simple and give definite numerical measurements by means of which the printing qualities of paper can be evaluated.

A number of printed specimens, together with laboratory tests on the papers used, has been assembled to show the relationship between the laboratory tests and the printed results. It is not possible to include the printed sheets as part of this report, but they are available for inspection. Following are listed the test results on a few samples, together with some laboratory forecasts of the quality of the printed sheets. The forecasts are correct in each instance, indicating the value of the test methods. All tests were made at 50 per cent relative humidity and 70 deg. F. temperature.

Sample No. 1—W. F. Hall Laboratory Test Report No. 1818:

This is a comparison of two successive sheets of enamel paper used on a 4-color catalog cover.

Density (sec.)	Oil Absorption (sec.)	Printing Smoothness (sec.)	Thickness (in.)
355	17	430	.0042
165	11	225	.0045

The sheets were printed one after the other in yellow and black. The difference between the two is evident, the printing on the denser and smoother sheet being of much better quality.

Sample No. 2—W. F. Hall Laboratory Test No. 1629:

These are comparisons of two successive sheets of 100-pound enamel, printed in 4-color by the McKee process.

Oil Absorption (sec.)	Thickness (inch)
8	.0050
39	.0047

It was not possible to make density and smoothness tests on these sheets, because of the small unprinted areas available. However, the wide difference in quality of the printed work is due primarily to the difference in rate of oil absorption, although the difference in color of the two sheets had some effect.

Sample No. 13—W. F. Hall Laboratory Test No. 1601:

Oil Absorption (sec.)	Printing Smoothness (sec.)	Thickness (in.)
48	685	.0043
30	550	.0047
12	370	.0049

The quality of printing varied widely. On the smoothest, least absorbent sheet the ink laid smoothly and dried with a good finish. The other two were progressively worse as the absorption time and smoothness decreased.

Samples Nos. 14 and 15—W. F. Hall Laboratory Test Reports Nos. 440 and 565:

This is a comparison between two rolls of 50-pound magazine super. These rolls were printed one after the other with no change in press speed or ink adjustment.

Roll No.	Basis Wt. (lbs.)	Density (sec.)	Oil Penetration (seconds)		Printing Smoothness (seconds)		Thickness (in.)
			Wire	Felt	Wire	Felt	
9676	50.4	47	31	31	180	210	.0032
9656	52.6	155	80	97	1180	910	.0028

Laboratory report states, "Roll 9676 will print without offset; strike-through will be noticeable, and halftones will appear dirty and broken. Roll 9656 will show offset, but halftones will print clean and sharp. Show-through will be evident due to low opacity." Facilities for opacity tests were not available at that time, so that no measurement of this factor was made.

Sample No. 23—W. F. Hall Laboratory Report No. 1844:

This is a comparison of an enamel sheet and a "special" sheet. The manufacturer of the latter stated it was equal in printing qualities to a high grade enamel paper, and that the inks used on it should be like those used on enamel paper, which dry principally by oxidation.

	Oil Absorption (seconds)	Printing Smoothness (seconds)	Opacity (per cent)
Enamel	8	680	86
Super	4	510	82

Laboratory report states, "The special paper is an average grade of super. It is twice as absorbent as and slightly rougher than the enamel paper to be used on part of the job. The 'special' paper will require inks adapted to super paper."

The printed sheets of the 4-color job on enamel and "special" papers, using inks made for enamel paper, and also the "special" paper printed with inks made for super, show the latter to resemble the printing on enamel as closely as super and enamel may be expected to come, and that the "special" paper printed with enamel inks is off color because of excessive absorption.

Samples Nos. 28 and 29—W. F. Hall Test Report No. 1116:

Roll No.	Density (sec.)	Oil Penetration (seconds)		Printing Smoothness (seconds)		Thickness (in.)
		Wire	Felt	Wire	Felt	
809	85	32	56	80	80	.0032
938	157	44	80	170	220	.0027

These samples are from two rolls of 36-pound halftone news used in 4-color rotary printing.

Laboratory report states, "Roll No. 809 will give satisfactory results in 4-color work, but Roll No. 938 cannot be printed under present conditions without offset as the oil penetration time is too high and the surface too smooth."

The printed sheets from these rolls show the results to be in line with the laboratory prediction.

Samples Nos. 30 and 31—W. F. Hall Laboratory Test Report No. 1788:

These two samples are 19-pound catalog newsprint.

Roll No.	Basis Wt. (lbs.)	Density (sec.)	Oil Penetration (seconds) Felt	Oil Penetration (seconds) Wire	Printing Smoothness (seconds) Felt	Printing Smoothness (seconds) Wire	Thickness (in.)	Opacity
377	20.2	68	27	16	65	60	.0021	69.0
388	21.4	135	38	19	165	145	.0019	69.5

Laboratory report states, "Roll No. 377 will not give good printing. The surface is too rough and the oil penetration time low. Halftones will be broken and strike-through will be in evidence. Roll No. 388 will print satisfactorily. The only possible trouble may be offset, and this is doubtful."

There is a marked difference in the two samples, the results substantiating the laboratory prediction. No offset was evident on Roll No. 388.

The test methods given in this report are used regularly in testing considerable quantities of paper, varying in quality from the lowest grade of pulp magazine paper to high-grade enamel. They have been found sufficiently satisfactory in practical use that some large consumers of paper have based their paper specifications on them.

It should not be concluded that, for example, of two enamel papers showing different printing quailties, as measured by these tests, that one is definitely better than the other. Ink and press makeready can be adjusted to bring out the best possible effect on any paper, but the same ink and makeready will usually give inferior results on a paper having different printing qualities. The principal thing to be ascertained in any printing paper is to what extent the printing quality can vary without affecting the quality of the finished job. The work so far has shown definitely that printing papers as now produced frequently vary to such extent as to prevent uniform quality printing.

It is not within the province of this sub-committee's work to establish limits of printing quality for any given paper or papers, nor to determine whether it is economically feasible for paper mills to maintain the uniformity of their product within whatever limits may be set up for paper intended for a certain kind of printing. The results obtained thus far indicate that good printing can be done within a relatively wide range of paper quality, but the committee does not suggest a specific range of printing quality for any kind of paper, as that is a matter of specifications, which must be developed by a correlation of laboratory and printing tests on the specific paper and job in question.

Much more work remains to be done, but it is for the Paper Testing Committee to decide where such work can best be carried out. The Technical Association has a Graphic Arts Committee and a paper use requirements committee, as well as the Printing Properties Sub-committee, and we are of the opinion that the fields of these committees overlap to a considerable extent. This is a matter which should be clarified before further work is done, in order to avoid duplication of effort.

Factors to be Studied

Among other factors requiring study are the following:

1. Tests for "picking" in coated papers.

These have not been developed to an extent that will permit of definite recommendation. Certain wax tests have been proposed from time to time, but these have been found difficult, if not impossible, of reproduction, and to give no accurate measure, numerical or otherwise, of the actual printing quality of the paper surface. A new instrument for measuring this characteristic has just been placed on the market, and a study of this should be part of the work of whatever committee carries on the work.

2. A study of the comparative value of different makes of smoothness testers.

Following the introduction of the Bekk Tester a few years ago, several competitive instruments have been placed on the market. The Bekk tester measures smoothness under approximately printing pressure. This, to the printer, is of much more importance than visual smoothness as measured under little or no pressure. For this reason the committee has designated printing smoothness rather than smoothness as a test for printing quality. The committee feels that the value of the Bekk tester, insofar as it relates to printing papers, has been definitely established.

3. The extent of abrasive particles in paper surfaces.

4. Variations in rate of oil absorption between adjoining spots on paper surfaces.

Test Methods Used

The test methods used in the work of this subcommittee are as follows:

Oil Absorption

This test was developed to measure the resistance of coated and heavy super printing paper to the penetration of printing inks. The "oil drop method" for measuring paper resistance to the penetration of printing inks is not suitable for heavy paper, as misleading results may be obtained due to the possibility of a number of variables being present at one time, such as a non-absorbent coating and a highly absorbent body stock, or a very absorbent coating and a highly non-absorbent body stock, etc.

Apparatus and Chemicals:

1. A burette or a separatory funnel for dropping the oil. The stem is drawn to such a diameter that 25 drops of distilled water drawn at 70 deg. F. will occupy a volume of one cubic centimeter.

2. A roller two inches long, one inch in diameter, coated with one-eighth inch of printers' roller composition. This is used to spread the oil on the paper to be tested.

3. A weight or means of applying a constant pressure of two pounds to the roller when spreading the oil.

4. Boiled linseed oil having a Stormer viscosity of 5.0-6.0 seconds at 25 deg. C.

Procedure:

A drop of oil is allowed to fall on the paper from a height of approximately two inches. A film of the oil approximately ¾ inch by 2 inches is then spread on the paper by running the roller over the drop of oil. This is done immediately after the drop of oil strikes the paper to be tested. As the oil is spread the stop-watch is started. The time is noted when the absorption of the film of oil by the paper is complete. Results are reported in seconds.

Oil Penetration

The method used is described under the "oil drop method" in the sub-committee report, published in Technical Association Papers, 1929 (*1*). C. P. castor oil has been found the best medium for use as it is non-oxidizing, easy to obtain in uniform quality, and has a viscosity more nearly that of printing ink than any other available oil.

Printing Smoothness

The Bekk tester was used. Details of the method are given in the sub-committee report of 1933, printed in Technical Association Papers, 1933. (*3*)

Thickness

The spring actuated gauge specified in TAPPI Standard T411m was found to be unsatisfactory, as it

reads only to .001 inch. The spring action was found particularly unsuitable in making hardness tests. This test has not been covered in this report, because of insufficient data. A dead weight gauge reading to .0001 inch, conforming to the TAPPI standards in other details is preferable. Consideration of modifying standard method T411m to include an accurate dead weight gauge is recommended.

DENSITY

The old model Gurley densometer was used in this work. The method should probably be revised in view of recent work done by the Bureau of Standards on this subject.

OPACITY

Two contrast ratio opacity testers were used at different times, as well as an instrument measuring opacity by transmission. The opacity data reported were obtained on the latter, the Westinghouse transometer. Our experience with this instrument indicates it has considerable practical value in measuring opacity of printing papers, in that the results coincide with the visual observations of several individuals.

Three instruments were compared with each other on the same samples, and a maximum variation of 1 per cent was obtained. It was also found that the fact that the instrument could be used to measure opacity on the margins of printed sheets was of considerable value.

It is recommended that the Paper Testing Committee consider further studies on this method of opacity measurement, with the idea of including it with the contrast ratio mentioned in the TAPPI standard methods.

Recommendations

The committee recommends that in view of the evidence presented and the fact that certain large consumers of paper have based their specifications on these tests, that the Paper Testing Committee give serious consideration to the adoption of density, oil penetration, oil absorption, and printing smoothness as tentative TAPPI standard tests and the revision of the present standard tests for thickness and opacity. This would provoke discussion and more extended trials, out of which should result standard tests for evaluating the printing quality of paper.

Acknowledgement

The committee wishes to express thanks to J. Niemczyk, W. Piszkiewicz, and H. Smock, of the technical force of the W. F. Hall Printing Company for assistance in conducting the laboratory and plant tests.

Literature Citation

(1) Tech. Assn. Papers, XII: 138 (1929).
(2) Tech. Assn. Papers, V: 79 (1922).
(3) Tech. Assn. Papers, XVI: 133 (1933); Govt. Print. Office Tech. Bull. 18.

Heat Requirements for Sulphite Pulping*

By O. L. Berger[1]

The Subcommittee on Utilization of Heat in Chemical Processes of the Heat and Power Committee of TAPPI sent out an elaboration on Special Inquiry No. 99 to obtain further information regarding the heat requirements for cooking sulphite pulp by the various methods now in use.

Fifteen representative mills replied and this is of course too few to give any definite comparative information.

The mills reporting are scattered all over the continent. All steam figures are based on (From and At) in pounds per ton unbleached sulphite.

Of the mills that replied six are using the Chemipulp Process, one forced circulation with indirect heating and eight the ordinary Ritter-Kellner method without any heat recovery.

The Chemipulp mills report steam figures from 4200 to 5400 pounds per ton averaging 4600 pounds. The mill using forced circulation reports 4800 pounds and the Ritter-Kellner mills show variations from 5290 to 9350 pounds averaging 7200 pounds.

From this may be seen that there is a saving of 2600 pounds of steam per ton sulphite by the use of the Chemipulp process and a slightly smaller saving of 2400 pounds by the use of forced circulation and indirect heating.

Low Steam Consumption and Strong Acid

It is interesting to note that the mill reporting the least steam consumption uses a much stronger acid than any other mills namely 8.50 per cent total with 7 per cent free. This is worth remembering and whether it is due to a higher yield or not we don't know as yet.

The other mills report an acid varying from 4.50 per cent total with 3.30 per cent free to 5.80 per cent total and 4.75 per cent free with an average of 1.15 per cent combined.

Eleven mills report superheated steam varying from 20 to 110 deg. F. averaging 55 deg. F. The other mills are not using superheat.

The maximum digester temperature varies from 137 to 160 deg. C. averaging 148 deg. C. As would be expected the higher digester temperatures require the most steam.

The maximum digester pressure varies from 65 to 90 pounds averaging 75 pounds. The mills reporting the least steam consumption also report the highest maximum digester pressure, which may be of interest as the same mills also reported the lowest maximum digester temperature.

The digester blow pressure varies from 24 to 60 pounds averaging 39 pounds and the mill reporting the smallest steam consumption also blows with the least pressure.

The temperature of the acid entering the digester varies from 25 to 80 deg. C. the last being a Chemipulp mill and as may be expected, the mill using the most steam for cooking also uses the coldest acid.

The mills report a great variation in the amount of acid per ton pulp. It varies from 2250 to 3420 gallons.

One Chemipulp mill reports that it uses 1350 gallons of raw acid and 900 gallons of reclaimed acid or a total of 2250 gallons. This seems to be a very ideal condition as it shows that 40 per cent of the cooking acid is obtained from the relief. This is also true with several of the other Chemipulp mills, while the total acid per ton is higher.

Tendency Towards Heat Conservation

While we deplore the fact that so few mills have cooperated with us in getting out this report, we still feel that the information we have obtained plainly shows a tendency towards heat conservation.

Your committee strongly recommends heat saving devices for mills using excessive amounts of process steam.

* To be presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, N. Y., Feb. 18 to 21, 1935.
[1]Member TAPPI, G. D. Jenssen Company, New York, N. Y.

PAPER MEN OPPOSE RECIPROCITY WITH NETHERLANDS

(Continued from page 15)

market is equal to that of the American converters of the product, who are ready and willing to pay a fair price for the American product, if all consumers are forced to buy on practically equivalent terms. If some converters, however, are able to secure from abroad a limited quantity of this paper—and there is not enough available to meet American requirements—the less fortunate converters must try to secure their straw paper requirements at prices equivalent to the foreign by cutting the price they can pay for the domestic material. This affects both the paper manufacturers and the farmers. This industry, therefore, hopes that there will be no change in the present conditions in this market.

Statement by Sidney Frohman

The proposed reciprocal tariff agreement with the Netherlands affects the American Paperboard Industry in its production of three commodities, all of which are being or have been imported extensively from the Netherlands. It is an interesting phase of this situation that all of the imported merchandise in which we are interested is made of straw, and that all importations mean a direct reduction in the amount of straw which can be sold by the farmers of the middle west to our industry. Any importations of these commodities not only reduce the amount of straw which can be purchased by the manufacturers, but also serve, because of the low prices of the foreign merchandise, to depress the prices which the American producers can pay for this straw.

The three commodities are closely related, but come under three different paragraphs of the Tariff Act of 1930. An analysis of the situation follows.

1. Straw Paper for Corrugating

In the production of corrugated shipping containers large quantities of so-called 9-point straw are used for an inner layer of the completed board. This is called 9-point, because it measures nine one thousandths of an inch in thickness. Prior to the Tariff Act of 1930 the tariff laws provided that nine points was the dividing line between paper and paper board. Any merchandise under nine points in thickness was classified for duty, as paper. Any sheet nine points or more in thickness was classified as paperboard or as paper according to the American commercial designation of the commodity in question. Very large quantities of the imported 9-point straw were imported. In 1930 when the tariff laws were being revised by Congress it was pointed out by this industry that the imports of this merchandise from the Netherlands as paper board deprived American farmers of a market for from 36,000 to 40,000 tons of straw annually. The Tariff Act of 1930 changed the dividing line between paper and paperboard from nine to twelve points.

This industry believes that no concessions should be made to the Netherlands which would in any way change this provision, under which 9-point straw paper is now classified as paper not specially provided for under Paragraph 1409 of the Tariff Act of 1930, dutiable at 30 percentum ad valorem.

2. Straw Board

In the last two years the Netherlands has developed a considerable business in this country for straw board, an unlaminated sheet of upwards of twelve points in thickness. This paper board is dutiable at 10 percentum ad valorem under Paragraph 1402 of the Tariff Act of 1930. In 1933 the imports of straw board totaled 3,742,461 pounds, valued at $33,504, or about $18.50 per ton. This board was imported to displace domestic board used in the manufacture of paper boxes valued at about $42.50 per ton. In 1934, due to exchange, the imports decreased somewhat, but for the first eleven months of the year imports totaled 1,440,517 pounds, valued at $15,770, or about $21.75 per ton. This tonnage of foreign straw board displaced an equivalent amount of domestic board used for paper boxes. The situation is unique in that owing to its comparatively small area the Netherlands can only produce a limited quantity of this board, the raw materials not existing with which American requirements can be met. Despite this fact, however, the sale of this board has a very direct depressing tendency on the very large quantity of domestic board, and tends to stabilize the prices of domestic competitive boards at a figure below the cost of production. Those fortunate purchasers who can secure the limited amount of imported board available can fix prices for their finished boxes which are a peculiarly disturbing element in the efforts of the domestic industry to secure prices for their product which will enable them to continue to pay the high wages for labor now required.

This industry believes that the rate of duty on straw board should be increased to the maximum allowed under the Act under which the proposed Trade Agreement is being negotiated, and this maximum of increase of 50 percent would result in a total duty of 15 percentum ad valorem which is not sufficient to compensate for the difference in cost of production of this straw board in the Netherlands and in the United States. Attention should be called at this point to the fact that this industry in the autumn of 1933 filed a petition under the flexible tariff provisions of the Act of 1930, asking for an increase in the duty rate. This petition is still on file awaiting action.

3. Laminated Straw Board

Importations of this board, dutiable at 30 percentum ad valorem under the Tariff Act of 1930, are for essentially the same purposes as the straw board, discussed in Paragraph 2 above. It is used for the heavier types of paper boxes, and consists of thinner sheets of straw board laminated with an adhesive to produce a stronger and thicker paper board.

Importations of this type of board during the first eleven months of 1934 totaled 83,650 pounds, valued at $1,139. This board, selling at such a low price, has the same effect on production of higher grades of domestic paper board as the plain straw board discussed above. Even with a duty of 30 percentum ad valorem, it is delivered in the United States at prices far below the domestic paper boards which are in direct competition with the lower priced unlaminated board.

This industry is not asking for an advance in duty on this type of paper board, but it does believe that its foreign cost of production is so low that there should be no reduction in the present rates of duty.

Summary

The position taken by the American Paperboard Industry in regard to the three forms of straw paper and paper board discussed above is that it is anxious for the maintenance of such rates of duty as will enable it to continue paying the present scale of wages, and not be forced to seek lower prices for the straw—the basic raw material—purchased from American farmers in order to meet this foreign competition. A nation which can not supply this country's needs of a specific manufactured commodity should not be allowed to set the prices for domestic merchandise with a comparatively small volume of shipments.

To Make Toilet Paper Survey

The Interfold Toilet Paper Industry has employed R. A. Lasley, Inc., of New York City, to make a national market survey of the industry. Many types of questions will be carefully analyzed, including such pertinent phases of merchandising as the following:

Are present sales efforts as effective and intelligent as they could be?

Do the present methods of distribution offer the greatest opportunity for effective selling presentations?

Would it be more profitable to concentrate on expanding the present market or competing for existing business?

Which markets are likely to produce the most desirable volume?

Can the domestic (or home market) be successfully invaded?

Are there any opportunities for improving the product, its cabinet, or distribution of cabinets?

What are the opinions and prejudices of the buyers of these products?

Are there any significant trends in the industry which should be taken into consideration?

What are the most costly abuses in the industry and how may they be eliminated?

It is hoped that an intelligent solution to these problems and many others will be determined from the survey, with resulting benefits to the manufacturer, distributor and consumer.

Business Picking Up in Northern New York

WATERTOWN, N. Y., February 4, 1935—Business appears to be picking up in Northern New York, judging by the mill reports.

The St. Regis Paper Company has just added two new Dilts beaters, and rebuilt a third into the Dilts type. At the Norfolk mill of the company a new Dilts high speed 2000-lb. beater for high grade specialty papers has been added. At the Raymondville mill the new installation is a Dilts "Broke" beater located in the basement beneath the No. 2 machine and is a "twin brother" of the Dilts beater which handles the "broke" from No. 1. At Harrisville, the Dilts Company has modernized a 2000-lb. beater to meet the increased beating demands of that mill.

And Northern New York further adds to the Dilts 1935 volume of business by installing a sixth Dilts beater in the line that turns out the special Latex boards that are so rapidly coming into favor, from the Latex Fibre Industries mill at Beaver Falls, N. Y.

Diamond Paper Box Co. Explains

It was stated in a recent issue that "the Federal Trade Commission announced this week that it had ordered the Diamond Paper and Box Company of Philadelphia to cease representing itself as the manufacturer of the boxes themselves." The company writes regarding this as follows:

"The order pertains only to such boxes as we are unable to manufacture in our own plant because of the limitation of our machinery. We wish to make it clear that we are paper box manufacturers as well as paper jobbers."

Heat Treated Forgings

The Kropp Forge Company has just completed a very interesting illustrated bulletin on Heat Treated Forgings. A copy of this bulletin may be had gratis by interested persons applying to the company at 5301 West Roosevelt Road, Chicago.

Glatfelter Co. Holds Territorial Meetings

The P. H. Glatfelter Company, as part of its merchandising campaign on Monoplane Bond has been holding territorial meetings of its agents and its agents' sales forces.

The first meeting was a dinner held in Philadelphia January 22 and was attended by 43 members of the Garrett-Buchanan Company and The Paper House of Pennsylvania.

Following the dinner, P. H. Glatfelter, president of the P. H. Glatfelter Company, welcomed the guests and outlined the program for the evening. A talk during the showing of moving pictures of the Glatfelter plant was made by C. H. Stallman.

The meeting was then in charge of W. S. McClellan, vice president and sales manager of the Glatfelter Company. Mr. McClellan discussed the Paper Industry Code and how it applied to mills and merchants, which he followed with a demonstration of Monoplane Bond and other Glatfelter papers, stressing their improved qualities, their many uses, and their speedy availability to the Philadelphia market.

Mr. Tracy of the Tracy-Parry Company, advertising counsel for the Glatfelter Company, followed with an interesting and inspirational talk on the advertising and promotional plans of the Glatfelter Company for the coming year.

During the evening Morgan Thomas, president of Garrett-Buchanan Company, and Norbert Considine, president of The Paper House of Pennsylvania, spoke, giving the men many instructive sidelights of merchandising paper, stressing the long friendship that has existed between their companies and the Glatfelter Company and the mutual cooperation that each has enjoyed.

This meeting was followed on the evening of January 31 with a dinner for the sales forces and executives of the Barton Duer & Koch Paper Companies of Baltimore and Washington at Baltimore.

At both meetings enthusiasm about Glatfelter quality and service was high. Increased sales of Monoplane Bond since the highly improved sheet has been placed on the market were reported, and optimism was high regarding future sales and about business conditions in general.

Additional meetings in other territories will be held in the future.

Regal Paper Co. Elect Officers

[FROM OUR REGULAR CORRESPONDENT]

PULASKI, N. Y., February 6, 1935—Stockholders of the Regal Paper Company held their annual meeting this week and elected directors and officers for the year. Earl H. Benson was elected president for another term. Other officers chosen included the following: George Hull and Mrs. E. H. Benson, vice presidents; Dimon Benson, secretary, and Richard W. Sweet, treasurer. The officers and V. C. Hirschey will comprise the board of directors. The annual dividends for both common and preferred stocks were declared and the financial report shows a satisfactory gain in business over the preceding year.

TAPPI Power Meeting Change

The Heat and Power Meeting of the Technical Association of the Pulp and Paper Industry to be held during Convention Week, February 18 to 21, 1935 at the Waldorf-Astoria Hotel, New York, has been changed from Tuesday afternoon, February 19 to Wednesday morning February 20.

IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING FEBRUARY 2, 1935

CIGARETTE PAPER

Protecto Products Co., Waukegan Havre, 2 cs.; Champagne Paper Corp., Waukegan Havre, 260 cs.; American Tobacco Co., Champlain Havre, 220 cs.

WALL PAPER

———, Hamburg Bremen, 28 cs.; F. J. Emmerich, New York Hamburg, 4 bls.

WALL BOARD

A. H. Morner, Gripsholm Gothenburg, 12 bdls.

PAPER HANGINGS

W. H. S. Lloyd & Co., American Merchant London, 1 cs.

NEWSPRINT

Perkins Goodwin & Co., Hamburg Hamburg, 312 rolls; Jay Madden Corp., Hamburg Bremen, 131 rolls; Gilman Paper Co., Gripsholm Gothenburg, 145 rolls; Wilkinson Bros. & Co., Fred. VIII Oslo, 285 rolls; Jay Madden Corp., Carplaka Kotka, 399 rolls; N. Y. Evening Journal, Markland Liverpool, N.S., 547 rolls; N. Y. Tribune, Markland Liverpool, N.S., 1601 rolls; World Telegram, Markland Liverpool, N.S., 781 rolls; Bridgeport Herald, Markland Liverpool, N.S., 36 rolls; Brooklyn Daily Eagle, Markland Liverpool, N.S., 62 rolls; Jay Madden Corp., New York Bremen, 130 rolls; International Paper Co., Gro St. Johns, 5958 rolls.

PRINTING PAPER

Steiner Paper Corp., H. Jasper Antwerp, 3 cs.; Steiner Paper Corp., Hamburg Bremen, 21 cs.

WRAPPING PAPER

McBratney Co. Inc., Caledonia Glasgow, 2 cs.; Japan Paper Co., Black Heron Antwerp, 2 cs.; Borden Riley Paper Co., New York Hamburg, 13 cs.

PACKING PAPER

Phoenix Shipping Co., Volendam Rotterdam, 9 cs.; ———, Volendam Rotterdam, 44 bls.

COLORED PAPER

International F'd'g Co., Hamburg Hamburg, 6 cs.

FILTER PAPER

A. W. Fenton, Inc., Hamburg Bremen, 100 bls.; H. Reeve Angel & Co. Inc., Aquitania Southampton, 10 bls., 4 cs.; H. Reeve Angel & Co. Inc., Samaria Southampton, 4 cs.; F. Henjes Jr., New York Bremen, 4 cs.

SURFACE COATED PAPER

Gevaert Co. of America, Black Heron Antwerp, 16 cs.; Globe Shipping Co., New York Bremen, 2 crates, 2 cs.

METAL COATED PAPER

K. Pauli Co., Hamburg Hamburg, 44 cs.; K. Pauli Co., New York Bremen, 32 cs.; Stone & Downer, New York Hamburg, 8 cs.

BASIC PAPER

Dingelstedt & Co., Hamburg Bremen, 16 cs.

COATED PAPER

Chas. Happel, Hamburg Hamburg, 3 cs.; Chas. Happel, New York Hamburg, 1 cs.

PHOTO PAPER

American Express Co., Hamburg Hamburg, 54 cs.

PARCHMENT PAPER

Vulcan Yeast Co., New York Hamburg, 1 cs.

TRANSFER PAPER

Hensel Bruckman & Lorbacher, Hamburg Hamburg, 5 cs.; Atlantic F'd'g Co., New York Hamburg, 19 cs.

DECALCOMANIA PAPER

B. F. Drakenfeld & Co., Britannic Liverpool, 16 cs. (duplex); B. F. Drakenfeld & Co., Britannic Liverpool, 9 cs. (simplex).

DECALCOMANIAS

Sellers Transportation Co., New York Hamburg, 20 cs.; Sellers Transporation Co., New York Bremen, 5 cs.

ALUMINUM PAPER

Hensel Bruckman & Lorbacher, Hamburg Hamburg, 7 cs.

TISSUE PAPER

W. J. Byrnes, Aquitania Southampton, 3 cs.

STENCIL PAPER

Chas. Happel, Black Heron Antwerp, 11 cs.

MARBLE PAPER

Tamm & Co., Black Heron Antwerp, 1 cs.

TRACING PAPER

C. Bruning, New York Bremen, 28 cs.

CARD BOARD

E. Dietzgen & Co., Samaria Southampton, 1 cs.

MISCELLANEOUS PAPER

Japan Paper Co., Pr. Cleveland Kobe, 76 cs.; Japan Paper Co., Ryoyo Maru Kobe, 10 cs.; Drytype Stencil Co., Ryoyo Maru Yokohama, 2 cs.; Hensel Bruckman & Lorbacher, Hamburg Bremen, 4 cs.; The Borregaard Co. Inc., Gripsholm Gothenburg, 65 bls., 493 rolls; Wilkinson Bros. & Co., Gripsholm Gothenburg, 9 bls.; Kraemer & Co., Gripsholm Gothenburg, 162 bls.; E. H. Sargent & Co., Gripsholm Gothenburg, 6 cs.; H. Reeve Angel & Co. Inc., Samaria Southampton, 3 cs.; Steiner Paper Corp., Black Heron Antwerp, 8 cs.

RAGS, BAGGINGS, ETC.

1st Nat'l Bank of Boston, H. Jaspar Antwerp, 52 bls. cotton waste; J. J. Ryan & Son, Ryoyo Maru Shanghai, 100 bls, cotton waste; Manufacturers Trust Co., Ryoyo Maru Kobe, 25 bls. rags; Leigh Textile Co., Amer. Shipper Manchester, 22 bls. cotton waste; J. J. Ryan & Son, Amer. Shipper Manchester, 100 bls. cotton waste; ———, Amer. Shipper Manchester, 62 bls. paper stock; American Express Co., Amer. Shipper Liverpool, 426 bags hide cuttings; ———, Caledonia Glasgow, 48 bls. bagging; ———, Norden London, 44 bls. rags; W. Steck & Co., Norden London, 217 bls. jute waste; ———, Norden London, 38 bls. cotton waste; J. J. Ryan & Son, Norden London, 67

bls. cotton waste; Royal Manfg. Co., Norden London, 325 bls. cotton waste; E. J. Keller Co. Inc., Norden ———, 201 bls. flax waste; J. J. Ryan & Son, Volendam Rotterdam, 60 bls. cotton waste; E. J. Keller Co. Inc., Pr. Polk ———, 305 bls. rags; I. Board, Oriente Havana, 17 bls. rags; E. J. Keller Co. Inc., Black Heron ———, 48 bls. rags; Loumar Textile By Products Inc., Black Heron Antwerp, 94 bls. rags; Royal Manfg. Co., Black Heron Antwerp, 41 bls. cotton waste; Darmstadt Scott & Courtney, Black Heron Antwerp, 235 bls. jute waste; Mitsui & Co. Ltd., Kwansai Maru Shanghai, 484 bls. cotton waste; Manufacturers Trust Co., Kwansai Maru Shanghai, 50 bls. cotton waste; J. Flannery, Collamer Havre, 36 bls. rags; American Express Co., New York Hamburg, 33 bls. paper stock.

GLUE STOCK

———, New York Hamburg, 30 bags hide glue; ———, New York Hamburg, 220 bags bone glue.

OLD ROPE

W. Steck & Co., Norden Rotterdam, 105 coils.

CHINA CLAY

English China Clays Sales Corp., Britannic Liverpool, 140 bags.

WOOD PULP

Price & Pierce, Ltd., Heddernheim Wallvik, 2250 bls. sulphite, 375 tons; Perkins Goodwin & Co., Heddernheim Sundsvall, 3600 bls. sulphite; Perkins Goodwin & Co., Heddernheim Sundsvall, 450 bls. sulphate; Price & Pierce, Ltd., Heddernheim Hernosand, 9000 bls. sulphate, 1524 tons; Pagel Horton & Co. Inc., Heddernheim Gefle, 625 bls. sulphite; Pagel Horton & Co. Inc., Heddernheim Gefle, 50 bls. sulphate; Tradesmans Nat'l Bank Trust Co., Heddernheim Gefle, 375 bls. sulphate; Bulkley Dunton & Co., Heddernheim ———, 125 bls. chemical pulp, 25 tons; Castle & Overton, Inc., Hamburg Hamburg, 2000 bls. woodpulp, 400 tons; Atterbury Bros. Inc., Delaware Sweden, 300 bls. sulphite; Perkins Goodwin & Co., Delaware Sweden, 750 bls. sulphite; J. Anderson & Co., Delaware Sweden, 375 bls. sulphite; E. M. Sergeant & Co., Delaware Sweden, 150 bls. chemical pulp; New Haven Pulp & Board Co., L. A. Barnes Bridgewater, 6707 bls. ground pulp; Perkins Goodwin & Co., Gripsholm Gothenburg, 1016 bls. sulphate; Perkins Goodwin & Co., Gripsholm Gothenburg, 254 bls. kraft pulp; Price & Pierce, Ltd., Gripsholm Gothenburg, 175 bls. sulphite; Price & Pierce, Ltd., Gripsholm Gothenburg, 325 bls. dry pulp; M. Sone, Gripsholm Gothenburg, 510 bls. wood pulp; Castle & Overton, Inc., Volendam Rotterdam, 2520 bls. wood pulp; J. A. Horan, Wagland Sheet Harbor, 10130 bls. wood pulp; M. Sone, Carplaka Helsingfors, 300 bls. wood pulp, 50 tons; Lagerloef Trading Co., Carplaka Helsingfors, 190 bls. sulphite, 31 tons; Lagerloef Trading Co., Carplaka Kotka, 3021 bls. sulphite, 545 tons; Castle & Overton, Inc., New York Hamburg, 1310 lbs. wood pulp, 274 tons; Bank of N. Y. Trust Co., New York Hamburg, 1235 bls. wood pulp, 247 tons; Bulkley Dunton & Co., Wanja ———, 2125 bls. wood pulp.

WOOD PULP BOARDS

Lagerloef Trading Co., Carplaka Helsingfors, 268 bls., 40 tons.

PORTLAND IMPORTS

WEEK ENDING FEBRUARY 2, 1935

Perkins Goodwin & Co., Delaware Sweden, 250 bls. sulphite; Atterbury Bros. Inc., Delaware Sweden, 500 bls. sulphite; The Borregaard Co. Inc., Delaware Sweden, 3924 bls. sulphate; Bulkley Dunton & Co., Bockenheim ———, 1375 bls. wood pulp.

BOSTON IMPORTS

WEEK ENDING FEBRUARY 2, 1935

———, Britannic Liverpool, 246 bags hide cuttings; G. F. Malcolm Inc., Britannic Liverpool, 17 cs. tissue paper; Oxford University Press, Britannic Liverpool, 21 cs. printing paper; Bulkley Dunton & Co., Wanja ———, 5500 bls. wood pulp; Bulkley Dunton & Co., Gonzenheim ———, 2775 bls. wood pulp; Bulkley Dunton & Co., Bockenheim ———, 2125 bls. wood pulp; Gottesman & Co. Inc., Lehigh Czecho-Slovakia, 2012 bls. wood pulp; M. Sone, Lehigh Hamburg, 316 bls. wood pulp.

PHILADELPHIA IMPORTS

WEEK ENDING FEBRUARY 2, 1935

Castle & Overton, Inc., Collamer Havre, 112 bls. rags; Castle & Overton, Inc., Collamer Dunkirk, 38 bls. new cuttings; Iwai & Co., Kwansai Maru Kobe, 19 cs. transparent paper; Gilman Paper Co., Markland Liverpool, N. S., 1668 rolls newsprint; M. Sone, Lehigh Hamburg, 263 bls. wood pulp; M. Sone, Wido Hamburg, 250 bls. wood pulp.

BALTIMORE IMPORTS

WEEK ENDING FEBRUARY 2, 1935

E. M. Sergeant & Co., Heddernheim Hernosand, 1500 bls. sulphite, 254 tons; Perkins Goodwin & Co., Heddernheim Hernosand, 900 bls. sulphate, 152 tons; ———, Heddernheim Hernosand, 900 bls. Sulphite, 152 tons; Price & Pierce, Ltd., Heddernheim Hernosand, 1800 bls. sulphate, 304 tons; ———, Heddernheim Gefle, 1000 bls. sulphite; Pagel Horton & Co. Inc., Heddernheim Gefle, 4000 bls. sulphite; Tradesmans Nat'l Bank Trust Co., Heddernheim Gefle, 168 bls. sulphate; ———, Heddernheim Iggesund, 2375 bls. chemical pulp, 475 tons; Gottesman & Co., Inc., Heddernheim Iggesund, 1110 bls. sulphite, 222 tons; Gottesman & Co. Inc., Heddernheim Iggesund, 125 bls. sulphate, 25 tons; Gongoleum Nairn Co., Waukegan Havre, 456 bls. rags; Atterbury Bros. Inc., Delaware Sweden, 1350 bls. chemical pulp; ———, Norden London, 120 coils old rope; Congoleum Nairn Co., Exermont Marseilles, 423 bls. rags; Bulkley Dunton & Co., West Arrow ———, 1042 bls. wood pulp; M. Sone, Kersten Miles Rosenborg, 540 bls. wood pulp.

NEWPORT NEWS IMPORTS

WEEK ENDING FEBRUARY 2, 1935

Price & Pierce, Ltd., Heddernheim Wallvik, 3240 bls. sulphite, 540 tons; Gottesman & Co. Inc., Heddernheim Iggesund, 1130 bls. sulphite, 226 tons; Stora Kopparberg Corp., Heddernheim Gefle, 405 bls. wood pulp; Price & Pierce, Ltd., Heddernheim Gefle, 2680 bls. sulphite; The Borregaard Co. Inc., Delaware Sweden, 3000 bls. sulphate; Atterbury Bros. Inc., Delaware Sweden, 750 bls. chemical pulp.

NORFOLK IMPORTS

WEEK ENDING FEBRUARY 2, 1935

N. Y. Trust Co., Waukegan Havre, 90 bls. bagging.

SAVANNAH IMPORTS

WEEK ENDING FEBRUARY 2, 1935

W. Garret & Son, Ryoyo Maru Shanghai, 208 bls. bagging.

HOUSTON IMPORTS

WEEK ENDING FEBRUARY 2, 1935

E. J. Keller Co. Inc., Nashaba ———, 149 bls. bagging.

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, February 6, 1935.

Some improvement transpired in the local paper market during the past week. Despite the severe weather conditions, demand for the various grades was more persistent and the outlook for the immediate future is bright. Sales forces of the leading paper organizations continue optimistic. Prices are generally holding to schedule.

The total advertising lineage of the nine New York and two Brooklyn papers in January was 4 per cent higher than in the corresponding period last year, an analysis of Media Records figures indicates. There have been no new developments in the price situation, however, which remains unsatisfactory.

Conditions in the book paper market are more satisfactory, and there is some talk around of higher prices. Other grades of fine paper continue steady to firm. Tissues are going forward in good volume for the season. The coarse paper market is displaying strength. Paper board is in better request. Box board quotations are steady.

Mechanical Pulp

The position of the ground wood pulp market is practically unchanged. Manufacturing operations in the United States, Canada and abroad are keyed to consumption and the statistical condition of the industry is sound. The contract movement is normal for the time of year. Prices are holding to formerly quoted levels.

Chemical Pulp

Steadiness prevails in the chemical pulp market. Demand for the various imported and domestic grades is decidedly better than for some time past. Kraft pulp is exhibiting a strong undertone and quotations are quite firm. Bleached sulphite is still quoted at from $2.75 to $2.85, on dock, Atlantic, Gulf and West Coast ports.

Old Rope and Bagging

The old rope market is marking time. Demand for domestic and foreign old manila rope is only moderately active. Small mixed rope is dull. The bagging market is displaying strength. Scrap and gunny bagging are moving freely. Roofing bagging is firmer, and the future outlook for this grade is particularly bright.

Rags

Business in the domestic rag market is gradually expanding. Demand for new cotton rags is improving. Export request for several grades is still persistent, especially for No. 1 white shirt cuttings. The imported rag market is sharing the general betterment despite the uncertain foreign exchange situation. Prices are nominal.

Waste Paper

With collections of paper stock retarded through severe snowstorms encountered in different sections of the country, paper mill interest in the waste paper market is more in evidence. The lower grades of paper stock are firmer and strictly folded news is now quoted at from 35 to 40 cents and No. 1 mixed paper at from 17½ cents to 20 cents.

Twine

Trading in the local twine market is fairly lively. Demand for the various varieties is improving, following the usual after holiday lull. While competition for desirable orders is keen, prices are generally well maintained and reports of concessions are scarce.

Belgian Paper Industry Loses Ground in Foreign Markets

Belgium's paper industry lost ground in foreign markets during the past year, a report from Consul W. H. Sholes, Brussels, made public by the Commerce Department, shows.

Sales abroad of leading classes of paper and board products during the first ten months of 1934 totaled 25,724 tons, valued at 74,472,000 francs, compared with 31,691 tons, valued at 104,500,000 francs, in the corresponding 1933 period.

The vegetable parchment branch of the industry, which has always enjoyed a world-wide reputation, it is pointed out, has not succeeded in maintaining its former privileged position. Exports of this item declined from 4,497 tons, valued at 25,606,000 francs, in the January-October period of 1933 to 3,158 tons, valued at 16,765,000 francs, in the first ten months of 1934. (Belgian franc equals approximately 23 cents, U. S.)

Keen competition from Scandinavian countries and Germany, the report states, has weakened the position of Belgian paper products in South American markets. Great efforts are being made to recover the former business in those territories and to develop trade relations with countries such as Palestine, Syria and neighboring countries, where the economic trend is reported to be more favorable.

The aggregate capacity of the Belgian paper industry in 1934 was reliably estimated at 22,800 tons per month with production in that year being placed at approximately 60 per cent of capacity.

The opinion was recently expressed in well informed circles, according to the report, that the prospects of the paper industry appear to be somewhat brighter. A favorable symptom is seen in the fact that during the last weeks of the year one of the large wrapping paper manufacturers received substantially larger orders than in the corresponding period of 1933.

P. W. Lesh on Public Relations Committee

Perry W. Lesh, president of the Lesh Paper Company, Indianapolis, has been named president of the public relations committee of the Indianapolis Chamber of Commerce.

Miscellaneous Market

Office of the PAPER TRADE JOURNAL,
Wednesday, February 6, 1935.

BLANC FIXE.—Conditions in the blanc fixe market are fairly satisfactory. Prices are holding to schedule. The pulp is quoted at from $42.50 to $45 per ton, in bulk; while the powder is selling at from 3½ to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER.—The position of the bleaching powder market is practically unchanged. Shipments against contract are moving regularly. Prices remain steady to firm. Bleaching powder is quoted at from $1.90 to $2.15 per 100 pounds, in drums, at works.

CASEIN.—The casein market continues firm. Domestic standard ground is quoted at 11 and finely ground at 11½ cents per pound; while Argentine standard ground is offered at 13½ and finely ground at 14 cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Steadiness prevails in the caustic soda market. The prevailing demand is irregular. Prices are steady, however. Solid caustic soda is quoted at from $2.60 to $3.10; while the flake and ground are selling at from $3 to $3.05 per 100 pounds, in large drums, at works.

CHINA CLAY.—The china clay market is displaying strength. Demand is fairly persistent and prices are steady to firm. Imported china clay is quoted at from $13.50 to $21 per ton, ship side; while domestic paper making clay is selling at from $6.50 to $12 per ton, at works.

CHLORINE.—The chlorine market is practically marking time. While demand is light at present, more lively trading is anticipated shortly. Chlorine is quoted at from $2 to $2.40 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market is easier. Paper making gum rosin is now quoted at $4.60 and FF wood rosin at $4.60 per 280 pounds, gross weight, in barrels, at Savannah. Seventy per cent rosin size is selling at $2.63 per 100 pounds, in tank cars, at works.

SALT CAKE.—Paper mill demand for salt cake is fairly active. Prices continue steady. Salt cake is quoted at from $12 to $13 and chrome salt cake at from $11 to $12 per ton, at works. Imported salt cake is selling at from $12 to $13 per ton, on dock.

SODA ASH.—The soda ash market is in a sound statistical position. Demand is rather irregular. The contract movement, however, is normal. Prices are firm. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $1.10; in bags, $1.40; and in barrels, $1.50.

STARCH.—No radical changes have transpired in the starch market. Demand is moderately active. Prices are holding to schedule without difficulty. Special paper making starch is still quoted at $3.75 per 100 pounds, in bags; and at $3.84 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—Demand for sulphate of alumina is well sustained. The contract movement is well up to average. Commercial grades are still quoted at from $1.35 to $1.50; while iron free is selling at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market continues steady. Sulphur is quoted at $18 per long ton on orders of 1,000 tons, or over, on yearly contracts; and at $20 per ton on any smaller quantity over that period. On spot and nearby car loads, the quotation is $21 per ton.

TALC.—Business in the talc market is rather quiet. Contract shipments are going forward in seasonal volume. Prices are steady. Domestic talc is quoted at from $16 to $18 per ton, at eastern mines; while imported talc is selling at from $23 to $30 per ton, on dock.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	6.50	@	—
Bonds	6.00	@	—
Index	6.00	@	—
Writings—			
Extra Superfine	6.50	@	—
Superfine	6.25	@	—
Tub sized	5.75	@	—
Engine sized	5.50	@	—
Book, Cased—			
S. & S. C.	5.35	@	5.75
S. & S. C. Litho.	5.60	@	6.00
M. F.	5.10	@	5.50
Coated and Enamel	5.90	@	6.55
Coated Litho	5.90	@	6.55
Tissues—Per Ream—			
White No. 1	.82½	@	.85
White No. 2	.67½	@	—
Anti-Tarnish M. G. only	1.00	@	—
Colored	.85	@	—
Kraft	.70	@	—
Manila	.67½	@	.70
Manila—			
No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.00	@	5.25
No. 2 Wood	3.50	@	4.00
Butchers	4.00	@	4.50
Fibre Papers—			
No. 1 Fibre	4.25	@	5.50
No. 2 Fibre	4.00	@	4.75
Common Bogus	1.50	@	3.00
Screenings	2.50	@	3.50
Glassine—			
Bleached	.11	@	—
Unbleached	.09	@	—

(The following Quotations are Delivered New York)

News, per ton—			
Roll, contract	40.00	@	—
Rolls, spot	40.00	@	—
Sheets	45.00	@	—
Kraft—			
No. 1 Northern	4.12½	@	4.75
Standard	4.00	@	—
Southern	3.87½	@	—
Boards—per ton—			
News	40.00	@	45.00
Chip	37.50	@	40.00
Sgl. Mla. Ll. Chip	47.50	@	52.50
Jute Lined Chip	47.50	@	52.00
White Patent Coated	60.00	@	65.00
Binders Boards	67.00	@	75.00

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—			
Moist	21.00	@	22.00
Dry	21.00	@	22.00
(F.o.b. Mill)			
No. 1 Domestic and Canadian	18.00	@	24.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—			
Division 1	2.85	@	—*
Division 2	2.80	@	—*
Division 3	2.75	@	—*
Prime Qualities—			
Class 1. All Prime Easy Bleaching	2.25	@	—*
Other Than Easy Bleaching—			
Class 2. Higher Than Standard	2.20	@	—*
Class 3. Standard	2.15	@	—*
Class 4. Lower than Standard	2.10	@	—
(On Dock, Atlantic Ports)			
Kraft No. 1	1.65	@	1.75
Kraft No. 2	1.50	@	1.60
(F.o.b. Pulp Mill)			
Kraft Domestic	1.60	@	2.25
(Delivered)			
Soda Bleached	2.50	@	—

*Add 60 Cents per short ton, dock charges, for Albany; $2.00 for Lake Ports East and $3.00 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	5.75	@	6.00
Silesias No. 1	3.75	@	4.00
New Unbleached	6.25	@	6.50
New Soft Blacks	3.00	@	3.25
Blue Overall	3.50	@	3.75
Fancy	2.50	@	2.75
Washables	1.75	@	2.00
Mixed Khaki Cuttings	3.00	@	3.25
O. D. Khaki Cuttings	3.75	@	4.00
Men's Corduroy	1.50	@	1.75
New Mixed Blacks	2.50	@	2.75

Old Rags

White, No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.75	@	3.25
White, No. 2—			
Repacked	1.75	@	2.25
Miscellaneous	1.50	@	1.75
Thirds and Blues—			
Repacked	1.50	@	1.75
Miscellaneous	1.25	@	1.50
Black Stockings	2.50	@	3.00
Roofing Rags—			
No. 1	1.20	@	1.30
No. 2	.90	@	.95
No. 3	.80	@	.85
No. 4	.75	@	.80
No. 5A	.70	@	.75

Foreign Rags

New Rags

New Dark Cuttings	1.60	@	1.70
New Mixed Cuttings	1.75	@	1.85
New Light Silesias	3.75	@	4.00
Light Flannelettes	3.75	@	4.00
Unbleached Cuttings	6.50	@	6.75
New White Cuttings	6.50	@	6.75
New Light Oxfords	3.25	@	3.50
New Light Prints	2.75	@	3.00

Old Rags

No. 1 White Linens	7.50	@	8.00
No. 2 White Linens	6.50	@	7.00
No. 3 White Linens	4.50	@	5.00
No. 4 White Linens	2.25	@	2.50
No. 1 White Cotton	4.25	@	4.75
No. 2 White Cotton	3.25	@	3.75
No. 3 White Cotton	2.50	@	2.75
No. 4 White Cotton	1.90	@	2.15
Extra Light Prints	2.00	@	2.25
Ord. Light Prints	1.75	@	1.85
Med. Light Prints	1.55	@	1.65
Dutch Blue Cottons	1.75	@	1.85
French Blue Linens	2.30	@	2.40
German Blue Linens	2.15	@	2.25
German Blue Cottons	1.70	@	1.80
Checks and Blues	1.30	@	1.40
Linsey Garments	1.40	@	1.60
Dark Cottons	1.00	@	1.10
Old Shopperies	.95	@	1.00
New Shopperies	.90	@	1.00
French Blues	1.70	@	1.80

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—			
Foreign	1.50	@	1.60
Domestic	1.40	@	1.50
Wool Tares, light	1.20	@	1.30
Wool Tares, heavy	1.20	@	1.30
Bright Bagging	1.15	@	1.25
Manila Rope—			
Foreign	1.85	@	2.00
Domestic	1.75	@	2.00
Small Mixed Rope	1.10	@	1.35
New Burlap Cut	2.00	@	2.25
Hessian Jute Threads—			
Foreign	2.60	@	2.75
Domestic	2.80	@	3.00

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	2.70	@	2.80
Ordinary Hard White No. 1	2.15	@	2.25
Hard White No. 2	1.95	@	2.05
Soft White No. 1	1.85	@	1.95
Flat Stock—			
Stitchless	.65	@	.75
Over issue Mag.	.65	@	.75
Solid Flat Book	.45	@	.50
Crumpled No. 1	.35	@	.40
Solid Book Ledger	1.50	@	1.65
Ledger Stock	1.00	@	1.10
New B. B. Chips	.30	@	.35
Manilas—			
New Env. Cut	1.70	@	1.80
New Cuttings	1.35	@	1.45
Print	Nominal		
Bogus Wrapper	.40	@	.50
Container	Nominal		
Old Kraft Machine—			
Compressed bales	1.10	@	1.20
News—			
No. 1 White News	1.20	@	1.30
Strictly Overissue	.65	@	.70
Strictly Folded	.35	@	.40
No. 1 Mixed Paper	.17½	@	.20

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